How to Use this Catalog

Your 1997 Washington State University Catalog provides you with information on a wide variety of important topics. This page shows how you can use the catalog easily.

✓ General Information iv-40

✓ General Education Requirements and Courses 41-54

It is particularly important to understand WSU's General Education Requirements (GERs), since you must fulfill them in order to graduate.

Note: Students pursuing degrees in the College of Liberal Arts and the College of Sciences have additional credit hour requirements for General Education and foreign language course work. Honors Program students also have different requirements.

✓ Departments, Degree Programs, and Courses 55-244

The information in this section includes the following:

• Listings of faculty, descriptions of academic fields, and departmental requirements, in alphabetical order by department name.

• A complete listing of courses needed to graduate. The degree program requirements are shown in a semester-by-semester sequence to help you plan your schedule. You will find the degree programs organized by department. For instance, the Marketing degree program is found under the Departments of Business. Do note that departmental requirements are set at the time you certify in your major (see page 36 for details).

• A description of the courses offered by each department. Undergraduate courses are numbered from 100 through 499. 100- and 200-level courses are suggested for first- and second-year students, while 300- and 400-level courses are most appropriate for third- and fourth-year students. Graduate courses are numbered from 500 through 800, and professional courses are designated with the letter P following the course number.

✓ Understanding Degree Program Requirements

A degree program is a specific area of study leading to a bachelor's degree. Here is an example and explanation of what you will see when you look at a degree program:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) First Semester</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Degree Program Course1</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language, if necessary, or Elective</td>
<td>4</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Tier I Science [Q] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td></td>
</tr>
</tbody>
</table>

Many degree programs allow you to take the required courses in a different order. Your advisor can tell you how much flexibility you have in rearranging your degree program sequence.

(1) You are required to take a certain number of General Education Requirements from different areas. In this case, you need to choose an Arts & Humanities course. Here you have a choice of any course that is designated with an [H] or a [G] from the catalog.

Keep in mind that all GER courses you choose must be outside your degree program department. So if you plan to be an Architecture major, you cannot use Arch 202 [H] (GER) to satisfy your GER requirements, although anyone who is not an Architecture major can.

(2) Footnotes are frequently used to give you more detailed information. In this case, the footnote will list the course you should take given your specific degree program.

(3) The College of Liberal Arts and the College of Sciences require you to take one year of a foreign language at the university level, if two years were not completed at the high school level (see page 40).

✓ Understanding Course Descriptions

Below are examples of course descriptions with definitions for each part:

Course Prefix: Abbreviation and number. [B] indicates GER course.

Credit hours are shown here. This is a 4-credit course, with three hours in lecture and three hours in lab each week.

Course Title

Prerequisites will be listed if there are courses you need to take before you enroll in this class.

Bio S 104 [B] Introductory Biology 4 (3-3) Prereq Bio S 103 (Bio S 101 or 102 with a grade of A or B may be substituted); two semesters Chem or c//. Continuation of Bio S 103. Biology of organisms; plants, animals, bacteria, ecology, and evolution.

c// indicates that you may take the course at the same time you take the prerequisite.

The number in parentheses is a previous number for this course.

V M 590P (414) Veterinary Clinical Nutrition V 1-3 Same as A S 414.

You will find the complete description of this course in the Animal Sciences course description section.

✓ Use the Index to find whatever you need!

General Education and Writing Proficiency Requirements

Past changes are summarized in the chart on the following page.

General Education Program Requirements

WSU’s General Education Program has been converted from a simple system of distribution requirements into an integrated program which is organized vertically, allowing sequential study in depth from the freshman year to the junior or senior year. Distribution requirements in the Arts and Humanities, Social Sciences, and Sciences are now organized in three tiers, indicating in broad terms the academic level of the courses and the order in which they should be taken. A portion of the General Education credit hours must be taken within a designated Area of Coherence. This requirement is a way of organizing the choices within the larger General Education curriculum. Within each of the Areas of Coherence, students will select an upper-division capstone course which provides a summative experience for that particular cluster of courses. The Area of Coherence and the three-tiered structure of the curriculum are new requirements effective this biennium.

A. The Structure of the General Education Program

Students are required to take a minimum of 40 credit hours distributed among the categories listed below. Fifteen of these credit hours (i.e., five courses), including the capstone course, must also be taken within an Area of Coherence.

<table>
<thead>
<tr>
<th>Tier I: 15 semester credit hours</th>
<th>Tier II: 22 semester credit hours</th>
<th>Tier III: 3 semester credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics Proficiency [N]</td>
<td>[C] 3</td>
<td>total hours</td>
</tr>
<tr>
<td>Sciences [Q]</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>Scienices # [H], [S], [K]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Arts and Humanities # [H], [G], [S], [K]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Sciences # [S], [K]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Intercultural I, [I], [G], [K]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Writing Experience within General Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Writing Experience within General Education</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b. Prior to enrollment in freshman writing courses, all students must take a Writing Placement Examination for the purpose of placement in appropriate writing courses. These placements are mandatory. The Writing Placement Examination is administered during summer New Student Orientation, at the beginning of fall semester, and prior to spring registration. Examination results will place students in the core writing course, Engl 101, Introductory Writing (or equivalent), or in Engl 101 plus one hour of Engl 102, Writing Tutorial. Students whose first language is not English may be placed in Engl 105, Composition for ESL Students. In some instances, students may be exempted from Engl 101 on the basis of their performance on the Writing Portfolio.

c. General Education courses require student writing of various kinds, both formal and informal, in order to provide adequate instruction in writing skills and to provide a wide range of student experiences in writing for many purposes and audiences.

Writing Proficiency Requirements

WSU faculty, administration, and regents have identified writing proficiency as a priority at WSU. Accordingly, all students will satisfy specified requirements to meet WSUs writing proficiency standards for graduation. The requirements are outlined below:

1. Writing Experience within General Education

a. All students must satisfy the Communication Proficiency requirement by passing 6 hours of written and oral communication courses, including at least 3 in written communication [W] at Tier I, and 3 of either [W] or [C] at Tier II.

b. Prior to enrollment in freshman writing courses, all students must take a Writing Placement Examination for the purpose of placement in appropriate writing courses. These placements are mandatory. The Writing Placement Examination is administered during summer New Student Orientation, at the beginning of fall semester, and prior to spring registration. Examination results will place students in the core writing course, Engl 101, Introductory Writing (or equivalent), or in Engl 101 plus one hour of Engl 102, Writing Tutorial. Students whose first language is not English may be placed in Engl 105, Composition for ESL Students. In some instances, students may be exempted from Engl 101 on the basis of their performance on the Writing Portfolio.

c. General Education courses require student writing of various kinds, both formal and informal, in order to provide adequate instruction in writing skills and to provide a wide range of student experiences in writing for many purposes and audiences.

2. The University Writing Portfolio

Successful performance with the University Writing Portfolio is a requirement for graduation at WSU. Students must satisfy this requirement, which involves submitting three papers from previously assigned class work plus two timed and proctored writing exercises, any time after successfully completing Engl 101 (or equivalent). Students must complete the portfolio no later than the end of the first semester of upper-division standing (upon completion of 60 hours). Transfer students may elect to postpone the portfolio until they have completed at least a semester of work at WSU.

3. Writing in the Major [M]

Two courses identified as writing in the major [M] must be included in course work taken to meet departmental requirements. Consult the requirements in the department in which you intend to major.

Transfer Students who have completed an approved Associate of Arts (AA) or Associate of Science (AS) degree at a Washington or Oregon community college are considered to have fulfilled the lower-division General Education Requirements. These students will still be responsible for meeting the other requirements for graduation, including those in the college and major departments. The University Writing Portfolio and the upper-division capstone course are not lower-division requirements and therefore cannot be satisfied by the approved associate degrees.

For more information, see pages 41-46.

For more information, see pages 41 and 42.
## Graduation Requirement Phase-In Timeline

### BEGAN POST-SECONDARY EDUCATION FALL 1995 AND AFTER

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hour Requirement</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Civilizations</td>
<td>A</td>
<td>6 hours</td>
</tr>
<tr>
<td>Communication Proficiency</td>
<td>C</td>
<td>W</td>
</tr>
<tr>
<td>Writing Placement Exam required if no transfer or AP credit for Engl 101 or equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercultural Studies</td>
<td>I</td>
<td>G</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td>H</td>
<td>G</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>S</td>
<td>K</td>
</tr>
<tr>
<td>Additional Arts and Humanities or Social Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>H</td>
<td>G</td>
</tr>
<tr>
<td>Mathematics Proficiency</td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Sciences</td>
<td>B</td>
<td>P</td>
</tr>
<tr>
<td>At least 3 hours</td>
<td>B</td>
<td>and 3 hours</td>
</tr>
<tr>
<td>Area of Coherence Capstone Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Writing Portfolio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing in the Major</td>
<td>M</td>
<td>two courses</td>
</tr>
</tbody>
</table>

### COLLEGE OF LIBERAL ARTS COLLEGE OF SCIENCES

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hour Requirement</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sciences</td>
<td>B</td>
<td>P</td>
</tr>
<tr>
<td>At least 3 hours</td>
<td>B</td>
<td>and 3 hours</td>
</tr>
<tr>
<td>Arts and Humanities, Social Sciences, Intercultural Studies</td>
<td>18 hours total</td>
<td></td>
</tr>
<tr>
<td>Foreign Language - one year (two semesters or three quarters) at the university level or two years of one language at the high school level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Writing Portfolio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing in the Major</td>
<td>M</td>
<td>two courses</td>
</tr>
</tbody>
</table>

### ENTERED WSU AS FRESHMAN FALL 1991 THROUGH SPRING 1993

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hour Requirement</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Civilizations</td>
<td>A</td>
<td>3 hours</td>
</tr>
<tr>
<td>Communication Proficiency</td>
<td>C</td>
<td>W</td>
</tr>
<tr>
<td>Writing Placement Exam required if no transfer or AP credit for Engl 101 or equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercultural Studies</td>
<td>I</td>
<td>G</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td>H</td>
<td>G</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>S</td>
<td>K</td>
</tr>
<tr>
<td>Mathematics Proficiency</td>
<td>N</td>
<td>O</td>
</tr>
<tr>
<td>Sciences</td>
<td>B</td>
<td>P</td>
</tr>
<tr>
<td>University Writing Portfolio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing in the Major</td>
<td>M</td>
<td>two courses</td>
</tr>
</tbody>
</table>

### COLLEGE OF LIBERAL ARTS COLLEGE OF SCIENCES

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hour Requirement</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sciences</td>
<td>B</td>
<td>P</td>
</tr>
<tr>
<td>At least 3 hours</td>
<td>B</td>
<td>and 3 hours</td>
</tr>
<tr>
<td>Arts and Humanities, Social Sciences, Intercultural Studies</td>
<td>21 hours total</td>
<td></td>
</tr>
<tr>
<td>Foreign Language - one year (two semesters or three quarters) at the university level or two years of one language at the high school level</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### BEGAN POST-SECONDARY EDUCATION BEFORE FALL 1991 OR ENTERED WSU AS TRANSFER STUDENT AND BEGAN POST-SECONDARY EDUCATION BEFORE FALL 1993

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hour Requirement</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Civilizations</td>
<td>A</td>
<td>not required</td>
</tr>
<tr>
<td>Communication Proficiency</td>
<td>C</td>
<td>W</td>
</tr>
<tr>
<td>Writing Placement Exam required if no transfer or AP credit for Engl 101 or equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercultural Studies</td>
<td>I</td>
<td>G</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td>H</td>
<td>G</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>S</td>
<td>K</td>
</tr>
<tr>
<td>Mathematics Proficiency</td>
<td>N</td>
<td>O</td>
</tr>
<tr>
<td>Sciences</td>
<td>B</td>
<td>P</td>
</tr>
<tr>
<td>University Writing Portfolio Required for transfer students Fall 1991 and after</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing in the Major</td>
<td>M</td>
<td>two courses. Required for transfer students Fall 1991 and after</td>
</tr>
</tbody>
</table>

### COLLEGE OF LIBERAL ARTS COLLEGE OF SCIENCES

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hour Requirement</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sciences</td>
<td>B</td>
<td>P</td>
</tr>
<tr>
<td>At least 3 hours</td>
<td>B</td>
<td>and 3 hours</td>
</tr>
<tr>
<td>Arts and Humanities, Social Sciences, Intercultural Studies</td>
<td>21 hours total</td>
<td></td>
</tr>
<tr>
<td>Foreign Language - one year (two semesters or three quarters) at the university level or two years of one language at the high school level</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Minimum University Graduation Requirements

- 120 total hours
- 40 upper-division hours
- 2.0 overall g.p.a.

Summer enrollment by itself does not constitute college admission.

Running Start students are held to university graduation requirements based on high school graduation date.

Acceptable Associate of Arts (AA) or Associate of Science (AS) degree from a Washington community college or Associate of Arts-Oregon Transfer degree from an Oregon community college fulfills all lower-division university graduation requirements. University Writing Portfolio and Writing in the Major courses are not fulfilled by the associate degree. Majors in the College of Liberal Arts and the College of Sciences must also complete the additional college requirements.

Students who entered WSU as freshmen spring 1991 or before are held to the 1985 General University Requirements (GURs).

University Honors Program students do not complete GERs.

 Prepared by Student Advising and Learning Center and Registrar’s Office
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Governor of the State of Washington
Advisory Member Ex Officio

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Kenneth Alhadeff
Seattle
Phyllis J. Campbell
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Richard A. Davis
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Okanogan
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Vancouver
Scott B. Lukins
Spokane
Carmen Otero
Seattle

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Dean, College of Sciences

A. Gale Sullenberger
Dean, College of Business and Economics

James J. Zuiches
Dean, College of Agriculture and Home Economics

LEGAL COUNSEL

Senior Assistant Attorney General
# Academic Calendar

## First Semester

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor Day holiday</td>
<td>Sept 1</td>
<td>Sept 7</td>
<td>Sept 6</td>
</tr>
<tr>
<td>Midsemester grades due, 8:00 a.m.</td>
<td>Oct 20</td>
<td>Oct 19</td>
<td>Oct 18</td>
</tr>
<tr>
<td>Veterans Day holiday</td>
<td>Nov 11</td>
<td>Nov 11</td>
<td>Nov 11</td>
</tr>
<tr>
<td>Thanksgiving Vacation</td>
<td>Nov 24-28</td>
<td>Nov 23-27</td>
<td>Nov 22-26</td>
</tr>
<tr>
<td>Final Examinations, Monday through Friday</td>
<td>Dec 15-19</td>
<td>Dec 14-18</td>
<td>Dec 13-17</td>
</tr>
<tr>
<td>Final grades due, 4:00 p.m.</td>
<td>Dec 23</td>
<td>Dec 22</td>
<td>Dec 21</td>
</tr>
</tbody>
</table>

## Second Semester

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes begin</td>
<td>Jan 12</td>
<td>Jan 11</td>
<td>Jan 10</td>
</tr>
<tr>
<td>Martin Luther King, Jr. Day holiday</td>
<td>Jan 19</td>
<td>Jan 18</td>
<td>Jan 17</td>
</tr>
<tr>
<td>Presidents Day holiday</td>
<td>Feb 16</td>
<td>Feb 15</td>
<td>Feb 21</td>
</tr>
<tr>
<td>Midsemester grades due, 8:00 a.m.</td>
<td>Mar 9</td>
<td>Mar 8</td>
<td>Mar 6</td>
</tr>
<tr>
<td>Spring Vacation</td>
<td>Mar 16-20</td>
<td>Mar 15-19</td>
<td>Mar 13-17</td>
</tr>
<tr>
<td>Final Examinations, Monday through Friday</td>
<td>May 4-8</td>
<td>May 3-7</td>
<td>May 1-5</td>
</tr>
<tr>
<td>Commencement</td>
<td>May 9</td>
<td>May 8</td>
<td>May 6</td>
</tr>
<tr>
<td>Final grades due, 4:00 p.m.</td>
<td>May 12</td>
<td>May 11</td>
<td>May 9</td>
</tr>
</tbody>
</table>

## Summer Session

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Session Registration</td>
<td>May 11</td>
<td>May 10</td>
<td>May 8</td>
</tr>
<tr>
<td>Memorial Day holiday</td>
<td>May 25</td>
<td>May 31</td>
<td>May 29</td>
</tr>
<tr>
<td>Eight-Week Session Registration</td>
<td>June 8</td>
<td>June 7</td>
<td>June 5</td>
</tr>
<tr>
<td>Late Six-Week Session Registration</td>
<td>June 22</td>
<td>June 21</td>
<td>June 19</td>
</tr>
<tr>
<td>Independence Day holiday</td>
<td>July 3</td>
<td>July 5</td>
<td>July 4</td>
</tr>
<tr>
<td>Summer Session ends, Friday</td>
<td>July 31</td>
<td>July 30</td>
<td>July 28</td>
</tr>
<tr>
<td>Final grades due, 4:00 p.m.</td>
<td>Aug 4</td>
<td>Aug 3</td>
<td>Aug 1</td>
</tr>
</tbody>
</table>

Faculty advising and preregistration for continuing students will be held prior to the end of the previous term. Registration dates are subject to change based on adoption of new technology.
Accreditation and Associations

Washington State University is accredited by the Commission on Colleges of the Northwest Association of Schools and Colleges, the regional accrediting association. The institution is a member of the National University Continuing Education Association and is listed in the official publications of the U.S. Office of Education and the State Department of Public Instruction.

Many departments and colleges are accredited by professional accrediting associations recognized by the Council on Post-secondary Accreditation. This information is included in the introductory material of the various departments and colleges, and an abbreviated list is printed below.

Commission on Colleges of the Northwest Association of Schools and Colleges
Council of Graduate Schools in the United States
American Assembly of Collegiate Schools of Business
American Association for Accreditation of Laboratory Animal Care
American Association of Colleges for Teacher Education
American Association of Colleges of Pharmacy
American Association of Veterinary Laboratory Diagnosticians
American Camping Association
American Chemical Society
American Council for Construction Education
American Council on Pharmaceutical Education

American Dietetic Association
American Psychological Association
American Society of Agricultural Engineers
American Society of Landscape Architects
American Society of Range Management
American Speech-Language-Hearing Association
American Veterinary Medical Association
Association for the Advancement of International Education
Computer Science Accreditation Commission of the Computing Sciences Accreditation Board
Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology
Foundation for Interior Design Education Research
National Academy of Early Childhood Programs
National Architectural Accrediting Board
National Association of Schools of Music
National Athletic Trainers Association
National Council for Accreditation of Teacher Education
National League for Nursing
National Recreation and Park Association
National University Continuing Education Association
Society for Range Management
Society of American Foresters
State Board of Education
University Council on Education Administration
Washington State Board of Nursing
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Washington State University

Washington State University, the state’s land-grant university, is dedicated to the preparation of students for productive lives and professional careers, to basic and applied research in various fields, and to the dissemination of knowledge. Founded in Pullman in 1890, the university became a multicampus system in 1989 with the establishment of campuses in Spokane, the Tri-Cities and Vancouver.

The university consists of eight colleges, a graduate school, and the Intercollegiate Center for Nursing Education (ICNE) which is headquartered in Spokane. For more than a century, WSU has offered strong and varied academic programs. The liberal arts and sciences have always occupied an important place in the curriculum, along with business, education, architecture, pharmacy, nursing, and the traditional land-grant programs in agriculture, engineering, home economics, and veterinary medicine.

The university offers nearly 100 major fields of study. Bachelor’s degrees are available in all major areas, with master’s and doctoral degrees available in most. WSU’s University Honors Program is one of the oldest and most well-respected, all-university programs for academically talented students in the nation. The new undergraduate core curriculum, including world civilizations courses and expanded writing requirements, is nationally recognized. Money magazine has called WSU a “public ivy” and rated the Honors Program one of the best in the nation.

Washington’s only statewide university, WSU has Cooperative Extension offices in all 39 counties, six regional learning centers, seven research and extension facilities in various locations, and 18 Small Business Development Centers statewide. The ICNE has a satellite nursing center in Yakima, and students can take WHETS courses from Wenatchee (via WSU Vancouver). WSU’s business school has a Center for Hotel and Restaurant Administration in Seattle. The university runs the Washington Higher Education Telecommunication System (WHETS), which transmits live, interactive instruction to the branch campuses and other sites. In 1992, WSU introduced a bachelor’s degree in social sciences via distance learning technologies, including cable television, for students in rural areas.

WSU’s instructional faculty of approximately 1,100, including a substantial number of scholars with national and international reputations, is responsible for instruction that opens students’ minds to the most recent knowledge and discoveries. The opportunity for students to know and work closely with their instructors is one advantage of a medium-sized, residential campus such as WSU Pullman. Personal attention from faculty is also a hallmark of the branch campuses.

The heart of the WSU system is the Pullman campus. WSU has about 16,600 students, including those in Pullman and at the ICNE. Of these, about 14,500 are undergraduates and nearly 2,100 are graduate students. Pullman is one of the largest residential campuses west of the Mississippi with about half of the student body living in residence halls, single and family student apartments, and fraternity and sorority houses. Here, students of diverse social, economic and ethnic backgrounds from throughout the nation and more than 90 countries come together in a community in which education is the principal industry and human development the primary concern.

More than 2,000 juniors, seniors and graduate students are enrolled at WSU Spokane, WSU Tri-Cities and WSU Vancouver. The branch campuses serve placebound individuals who have had limited opportunities to complete bachelor’s and master’s degrees. Enrollment is expected to double by the beginning of the next century as facilities and degree offerings are expanded.

WSU’s main campus is located in the Palouse country of southeast Washington, where much of the nation’s finest wheat and legumes are produced. Several small but expanding high-tech firms are diversifying Pullman’s economy. The 600-acre campus features modern classrooms and laboratories, libraries, museums, student residences, recreational and athletic facilities, student union and a community hospital. A new library addition has doubled WSU’s library capacity.

Of special note are a one-of-a-kind alumni center, a fine arts building with galleries, a state-of-the-art chemistry building, and a 12,000-seat performing arts coliseum that is home to Cougar basketball. The football stadium, which seats 40,000, is complemented by modern track and field and baseball facilities, all for Pac-10 competition.

A nine-hole golf course, 16 all-weather tennis courts and three swimming pools, including one of Olympic dimensions, are on the Pullman campus. Special playing fields accommodate intramural sports. WSU has one of the largest university-sponsored intramural programs in the nation as well as extensive student life programming.


Degrees Granted

Academic Degrees

Accounting, M Acct
Agribusiness, BS, MA
Agricultural Economics, BS, MA, PhD
Agricultural Molecular Genetics and Cell Biology, BS
Agricultural Technology and Management, BS
Agriculture, BS
American Studies, BA, MA, PhD
Animal Sciences, BS, MS, PhD
Anthropology, BA, MA, PhD
Apparel, Merchandising, and Textiles, BA, MA
Architectural Studies, BS
Architecture, B Arch, MS
Asian Studies, BA
Biochemistry, BS, MS, PhD
Biological Systems Engineering, BS
Biology, BS, MS
Botany, MS, PhD
Business Administration, BA, MBA, PhD
Chemical Engineering, BS, MS, PhD
Chemistry, BS, MS, PhD
Civil Engineering, BS, MS, PhD
Communication, BA, MA
Comparative American Cultures, BA
Computer Science, BS, MS, PhD
Construction Management, BS
Criminal Justice, BA, MA
Crop Science, BS, MS, PhD
Economics, BA, MA, PhD
Education, BA, EdM, MA, MIT, EdD, PhD
Electrical and Computer Engineering, PhD
Electrical Engineering, BS, MS, Engineering, MS
Engineering Management, MEngMgt
Engineering Science, PhD
English, BA, MA, PhD
Entomology, BS, MS, PhD
Environmental Engineering, MS
Environmental and Natural Resource Sciences, PhD
Environmental Science, BS, MS
Fine Arts, BA, BFA, MFA
Food Science and Human Nutrition, BS
Food Science, MS, PhD
Foreign Languages and Literatures, BA, MA
Genetics and Cell Biology, MS, PhD
Geological Engineering, MS
Geology, BS, MS, PhD

Health Policy and Administration, MHPA
History, BA, MA, PhD
Home Economics, BS
Horticulture, BS, MS, PhD
Hotel and Restaurant Administration, BA
Human Development, BA, MA
Human Nutrition, MS
Humanities, BA
Individual Interdisciplinary, DA, PhD
Integrated Cropping Systems, BS
Interior Design, BA, MA
Kinesiology, BS, MS
Landscape Architecture, BLA
Liberal Arts, B Lib A
Materials Science, PhD
Materials Science and Engineering, BS, MS
Mathematics, BS, MS, DA, PhD
Mechanical Engineering, BS, MS, PhD
Microbiology, BS, MS, PhD
Music, BA, B Mus, MA
Natural Resource Management, BS
Natural Resources, BS, MS
Natural Resources, MS
Neuroscience, MS, PhD
Nursing, BS, M Nurs
Nutrition, PhD
Pharmacology and Toxicology, MS, PhD
Pharmacy, B Pharm, DPharm
Philosophy, BA
Physics, BS, MS, PhD
Plant Pathology, MS, PhD
Plant Physiology, MS, PhD
Political Science, BA, MA, PhD
Psychology, BS, MS, PhD
Public Affairs, MPA
Recreation Administration and Leisure Studies, MA
Recreation and Leisure Studies, BA
Regional Planning, MRP
Science, BS
Social Sciences, BA
Social Studies, BA
Sociology, BA, MA, PhD
Soil Science, BS, MS, PhD
Speech and Hearing Sciences, BA, MA
Statistics, MS
Theatre Arts and Drama, BA, MA, MAT
Veterinary Medicine, DVM
Veterinary Science, BS, MS, PhD
Zoology, BS, MS, PhD
The Libraries

The university libraries are an integral part of the educational facilities. Books, journals, newspapers, microfilms, CD-ROMs, technical reports, maps, manuscripts, art prints, and photographs from resources of more than three million items supporting commitments in teaching, research, and public service. The libraries are depositories for U.S. documents, municipal and state documents, those from foreign countries, as well as publications of the U.N.

Reference librarians provide personal assistance using modern methods of information retrieval. For the most part, collections are maintained in easily accessible, open-stack arrangements. Limited study facilities are available. Special service programs include instruction in library use; accessing national computerized information systems; and accessing resources of other libraries, national and international, through inter-library cooperation.

The Holland/New Library provides extensive collections in the social sciences, business, and the humanities, as well as sophisticated service components designed to assist students, faculty, and researchers in utilizing these resources. Manuscripts, Archives, and Special Collections contain rich collections of primary resource materials books, manuscripts, photographs to support study and research in a number of fields, including Pacific Northwest history, modern British literature, regional publishing, veterinary history, agricultural history, wildlife and outdoor recreation, WSU history, and other subjects. Media Materials Services houses the Learning Resource Center and provides videotapes, films, slides, audio tapes and other media for classroom instruction, LRC use, local checkout and national circulation. Collections include the WSU-UI Regional Media Collection, the McCaw Classic Feature Films, Gnaedinger Historical Films, Pitzer Classic Radio Tapes, and others.

Owen Science and Engineering Library supports study and research in the pure and applied sciences with substantial collections in these disciplines, as well as automated bibliographic retrieval, user services, and a graduate student study room. It is conveniently located near most departments served by its collections.

The collections of the George W. Fischer Agricultural Sciences Branch Library in Johnson Hall Annex emphasize support for the plant and entomological sciences.

The biomedical collections and services offered by the Veterinary Medical/Pharmacy Library, located in Wegner Hall, primarily support the instructional and research needs of the Colleges of Veterinary Medicine and Pharmacy.

The George B. Brain Education Library in Cleveland Hall offers a wide range of materials and services to meet research and instructional needs from preschool through community college and adult education.

The Architecture Library, which supports programs in the School of Architecture, is located in Carpenter Hall.

In addition, library resources and facilities are available on the three branch campuses: Spokane, Tri-Cities, and Vancouver.

The libraries operate without interruption, except for designated holidays, throughout the calendar year.

The Summer Session

Washington State University conducts a summer session for undergraduate, graduate, and visiting students as an integral part of its year-round operation. Credit earned during summer session may be applied toward fulfillment of requirements for baccalaureate and advanced degrees in the same manner and subject to the same rules as credit earned during fall and spring semesters.

During summer session, courses are offered in most university departments to meet the needs of new freshmen and transfer students who wish to get an early start on their degree programs. Courses in a variety of academic areas are offered for continuing undergraduate and graduate students as well as for others qualified to pursue them to advantage. Emphasis is also placed on a program of advanced work for teachers and school administrators.

Shorter sessions, including early session courses varying from one to six weeks, special conferences, and institutes are also features of summer session.


WSU Foundation

Private support to Washington State University since the foundation was created in 1979 has had a tremendous impact on the quality of programs at WSU. The foundation raised more than $250 million in the last six years for WSU’s priorities of furthering great teaching, increasing access and diversity, fostering WSU’s special experience for students, and advancing research to serve Washington and the world. All gifts go in full to the area designated by the donor. The foundation administers donations in the best interests of both the donor and the university. Inquiries may be addressed to the President, WSU Foundation, Pullman, WA 99164-1042.
Student Life

Compton Union Building
The Compton Union Building is the campus community center. More than a building, it is an educational program of out-of-class activities designed to provide for the student’s personal, social, and cultural development; practice in leadership; and management and enjoyment of leisure activities.

The union has facilities for student activities, conferences and conventions. Facilities include food services of all kinds, meeting rooms, a games area, guest rooms for campus visitors, movie theater, copy center, lecture notes, outdoor rental shop, art gallery, legal services, lockers, and a variety of shops (called Little Main Street) offering a US Post Office, hairstyling salon, bank, travel service, credit union, floral shop, film processing service, typing service and bank machines.

Other groups with office space include the Associated Students of Washington State University (ASWSU), Associated Women Students, Residence Hall Association, Panhellenic/Intrafraternity Council, and Graduate and Professional Students Association (GPSA).

Scholastic Societies

Alpha Epsilon Rho. Alpha Epsilon Rho is a broadcasting honorary in the Edward R. Murrow School of Communication. Represented by the National Broadcasting Society, AERho is a nationwide organization made up of the very best students, faculty, and professional communicators in the broadcasting industry. Formed in 1943, it was the first national organization whose primary purpose was to bring communication students and professionals together. The WSU Chapter of AERho is involved in many activities, including sponsoring the end-of-the-year banquet for the School of Communication.

Golden Key. Golden Key National Honor Society was established in 1977 and chartered at WSU in 1987. The society is open to the top 15 percent of the junior and senior classes in all disciplines of study. Qualification is defined at WSU as those students with over 60 credit hours, 30 of which must be from WSU, who have attained a 3.4 cumulative g.p.a. Golden Key offers not only recognition for superior academic achievement, but opportunities for service and leadership. The WSU Golden Key Chapter annually recognizes the two outstanding academic advisors of the year at its annual induction reception.

Mortar Board. Mortar Board is a national honor society of college seniors recognized for their scholarship, outstanding and continual leadership, and dedicated service to the college or university community. It is a member’s willingness to continue to serve that differentiates Mortar Board from an honorary organization. Acceptance of membership indicates the person’s agreement to fulfill the responsibility for active participation in the chapter. Members must have at least a 3.0 cumulative grade point average to be considered for membership.

Omicron Delta Kappa. Omicron Delta Kappa is the national leadership honor society for juniors, seniors, graduate, and professional students. For eighty years, the society has recognized achievement and leadership in scholarship, athletics, campus and community service, social and religious activities, campus government, journalism, speech and the mass media, and the creative and performing arts. Students of any discipline who are in the top 35 percent academically are invited to apply for lifetime membership.

Phi Beta Kappa. Phi Beta Kappa, the oldest national honorary fraternity in the United States, was established to promote scholarship and friendship among students and graduates of American colleges and universities. The WSU chapter of Phi Beta Kappa, established in 1928, was one of the first chapters founded at a land-grant university. To be considered for selection, students must be majoring in a liberal arts discipline, have 75 percent of their course work in liberal arts, and have earned at least 45 of their total credits from WSU with a minimum 3.45 g.p.a. Only about 15 percent of the institutions of higher education in the United States have programs sufficiently strong in the sciences and liberal arts to warrant membership.

Phi Delta Kappa. Phi Delta Kappa is an international professional fraternity for men and women in education. The membership is composed of recognized leaders in the profession and graduate students in education whose leadership potential has been identified. Members include classroom teachers, school administrators, college and university professors, and educational specialists of many types. In Phi Delta Kappa, they find a fellowship based on common interests and ideas devoted to the promotion of free public education. Membership is by chapter invitation.

Phi Kappa Phi. Phi Kappa Phi, the first national scholastic society to recognize superior scholarship in all fields of study, was established in 1897. The WSU chapter was founded in 1919. Students from all disciplines within the university are eligible for membership. Candidates are selected from the upper 10 percent of the senior class and the top 5 percent of the junior class each year. Graduate students are also eligible for membership.

Phi Sigma Iota. Phi Sigma Iota was founded in 1922 to recognize outstanding ability and high standards of excellence in the field of foreign languages. It is an international society, and, as such, promotes international communication and understanding. Candidates are selected from undergraduates majoring or minoring in a foreign language who maintain at least a 3.0 g.p.a. Graduate students are also eligible for membership.

Student Clubs, Organizations, and Honoraries
Participation in departmental clubs and honoraries, service organizations, and campus activities is an important part of student life. More than three-fourths of the student body take part in the activities program. Adequate opportunities are available for every student to pursue extracurricular interests through service, recreation, religious, and other specialized interest groups.

ASWSU and the Activities and Recreational Sports Office coordinate and guide existing student organizations and assist new groups in developing sound programs. A professionally trained staff is prepared to help all students in planning well balanced activity programs adapted to their particular needs and interests.

Student Government
Undergraduate students at Washington State University are represented by 18 elected representatives who serve on the Associated Students of Washington State University (ASWSU) Senate. ASWSU is interested in a wide range of issues relating to the student’s life at WSU and is led by the student body president and vice president. The senate is directly involved in the allocation of ASWSU funds for programming and the establishment of operating procedures. Through the senate, ASWSU has developed a number of student committees and programs in the areas of education, entertainment, and recreation.

Graduate and professional students are members of the Graduate and Professional Students Association (GPSA). Five members of the GPSA represent their constituents on the Faculty Senate.

Student Publications
Student publications provide opportunities for students to express themselves, to serve the university community, and to gain experience in the production of a variety of printed self-supporting publications. The goal of each student publication is to provide information for students, staff, faculty, alumni, and other readers interested in Washington State University.

The Daily Evergreen is issued five times per week on campus during the nine months of the regular academic year. The Summer Evergreen is issued twice a week during summer session.

The Chinook is the university yearbook issued each August to over 9,000 buyers.
Student Services and Facilities

Career Services
Career Services is a student service. Three goals have been identified which are aimed at assisting students during their residence at Washington State University: (1) to aid students in defining career goals and aspirations while presenting them with future viable employment and post-graduate opportunities, (2) to assist students in setting themselves on paths to success, and (3) to bring together qualified applicants and prospective employers in a mutually satisfying manner. In order to accomplish these goals, Career Services has developed programs and services which benefit all students.

The Career Development Program (CDP) offers career assessment, planning, and counseling for students. Services include assistance with selecting a major, individual and group career exploration, vocational testing, and a 1-credit class entitled College Majors and Career Choice. Resources available to students include a career resource room and an interactive computerized vocational exploration system (SIGI Plus).

Career Services also provides access to internship opportunities. Internships are a joint effort between the student, an employer, and the university which combine the student’s academic studies with practical experience. Students learn by using work experience with an employer in their major, as a supplement to textbooks.

The Career Employment Program (CEP) provides graduating baccalaureate, master’s, and doctoral candidates access to full-time, internship, and summer employment opportunities through on-campus interviewing with 300 employers annually. Individual and group assistance with job search strategies, enhancement of interviewing skills, resume and cover letter development, and job searching on the Internet are regularly offered.

In addition, CEP offers students access to full-time, part-time (including off-campus work study), temporary, and summer employment through vacancy announcements posted to the "Job Listings" section on the Career Services homepage.


WSU Children’s Center
WSU Children’s Center offers part- or full-time child care for six-week- to 12-year-old children of WSU students, staff and faculty in two locations. One hundred and twenty children (ages 18 months to 12 years) are housed in the main center on Olympia Avenue and 23 children (ages six weeks to 18 months) are located in Commons Hall 103. Licensed by the Washington Department of Social and Health Services and accredited by the National Academy for Early Childhood Programs, the centers are designed to meet child care needs of parents while providing intellectual, social, emotional, and physical growth opportunities for children. Activities vary from quiet to active, group to individual, structured to unstructured. Children are grouped developmentally by age. Snacks and lunches are provided.

The centers are also available to students for observation and participation for classes. Work-study jobs are also available. Further information may be obtained by calling (509) 335-8847.

Conflict Resolution Program
The Conflict Resolution Program (CRP) assists in managing and resolving disputes by peaceful and constructive means that benefit the employees, students, and greater university community. The CRP offers a number of conflict resolution services including: mediation, consultation, facilitation, and organizational intervention. The Conflict Resolution Program also takes a preventative approach to resolving disputes. As a result, the program offers a variety of educational services that include training, workshops, presentations, and coaching. The office is located in Daggy Hall, Room 4. The program is open year-round, including the summer. The telephone number is (509) 335-6648.

Counseling Services
WSU Counseling Services offers specialized individual and group counseling and testing services without charge to any regularly enrolled student. A staff of professionally trained counselors is available to provide confidential assistance on an individual basis to students with personal, social or couple concerns. Group counseling and workshops are provided to help students with personal development and adjustment and to cope with such issues as eating disorders and sexual assault and abuse. Crisis services and consultation are available on a 24-hour basis. Call (509) 335-4511 for appointments or information.

Counseling Services provides the university with a comprehensive testing program. National, state, and personal testing is available by appointment, (509) 335-4513.

The Disability Resource Center
The Disability Resource Center (DRC) coordinates accommodations for students with disabilities in academic and non-academic programs. Accommodations may include modified test taking, textbooks on tape, sign language interpreters, notetakers, and accessible transportation on campus. Services available include academic advising, learning strategies training, the use of adapted equipment, and referrals.

The center provides disability awareness training for WSU faculty, staff, and students. The center works cooperatively with university programs to encourage compliance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. The DRC promotes self-advocacy for students with disabilities and teaches them self-advocacy skills.

For additional information contact the Disability Resource Center, room 206, Administration Annex, (509) 335-1566.

Educational Telecommunications and Technology
Educational Telecommunications and Technology operates Northwest Public Radio, a network of seven radio stations; Northwest Public Television, a network of two public television stations; and the Washington Higher Education Telecommunication System (WHETS).


Northwest Public Television, a member of the Public Broadcasting Service, produces and broadcasts local and national programs. KTNW-TV extends coverage to the Tri-Cities and Walla Walla areas while KWSU-TV broadcasts in the Pullman region. The signal of Northwest Public Television is extended by two community-owned translators in central Washington. WHETS is a statewide interactive distance learning video system which serves classrooms in Moscow, Pullman, Richland, Seattle, Spokane, Tukwilla, Vancouver, Wenatchee, and Yakima. Instructional support activities also include Cable 8, a university-oriented Pullman cable channel; KUGR-FM, a student-operated commercial radio station; and telecommunications support for academic departments.

Gay, Lesbian, Bisexual, and Allies Program
The Washington State University Gay, Lesbian, Bisexual, and Allies (GLBA) Program and GLBA Center is committed to assisting the university in fulfilling its goal of a positive diverse campus. In so doing, the program and the center create an environment that acknowledges, respects, and enhances diversity and provides programs and services for lesbian, gay, and bisexual students, faculty, and staff.

The goals of the GLBA Program are:
- To create a positive social, academic and employment environment at WSU for lesbian, gay, and bisexual students, faculty, staff, and visitors;
- To increase campus-wide understanding and awareness of the needs, issues, and realities of lesbian, gay, and bisexual people, as well as confronting and reducing negative attitudes;
- To reduce the effects of alienation among members of the gay, lesbian, and bisexual community by actively supporting the concept of WSU as a place which supports and accepts diverse lifestyles;
Student Services and Facilities

- To ensure enforcement of established campus policies which prohibit harassment of and discrimination against lesbians, gays and bisexuals at WSU;
- To establish, maintain and enhance relationships with all WSU centers and organizations.

The GLBA Program provides an outreach and service component for students, faculty and staff through the GLBA Center. The program also has an education component to provide information and referral for the gay, lesbian and bisexual community and other members of the WSU community. The program provides noon hour educational programing and cospomrs support groups for the GLBA community in conjunction with Counseling Services. The GLBA speakers bureau and the GLBA newsletter (both entitled Breaking the Silence) function under the education component. A research component to actively support research and curricular developments which help integrate gay/lesbian/bisexual scholarship into the academic life of the WSU community is also supported by the GLBA Program.

The GLBA Program and Center are located in the Compton Union Building, Room B19A.

The Center for Human Rights

The mission of the Center for Human Rights is to ensure affirmative action, equal economic and educational opportunity, and fair and equitable treatment for all of WSU’s constituents. The Center for Human Rights is responsible for:

- EEO/AA: Participating in the search process for vacant positions; conducting recruitment orientation in compliance with the WSU recruitment manual; coordinating departments’ EEO representatives; and monitoring hiring of classified staff, faculty, and exempt positions for EEO/AA compliance;
- Complaint Investigation: Investigating complaints of all forms of discrimination, including sexual harassment; prohibiting forms of discrimination including race, sex, religion, age, color, creed, national or ethnic origin, physical, mental or sensory disability, marital status, sexual orientation, and status as a Vietnam-era veteran; utilizing how-to manual to assist managers and supervisors in investigating sexual harassment complaints; referring appropriate cases to the Conflict Resolution Programs and Human Resource Services;
- Compliance: Developing the university’s annual affirmative action plan; preparing EEO reports; conducting glass ceiling analysis; maintaining applicant flow data collected from searches; conducting audits of the university’s work environment for posters, materials, and activities that are inappropriate and may create a hostile and intimidating work environment. Activities: Collaborating with Diversity Education and Employee Development on training programs for faculty, staff, and administrators.

For more information contact the Center for Human Rights, French Administration Building 225, Pullman, WA 99164-1022, (509) 335-8288, FAX (509) 335-1259.

The Office of Multicultural Student Services

The Office of Multicultural Student Services’ primary purpose is to provide services and programs that recruit, matriculate, and graduate students of color (African American, Asian Pacific American, Chicano/Latino, and Native American). Other goals are to expand cultural awareness, to celebrate our differences and similarities, and to heighten the appreciation of cultural and racial diversity within the university and the Pullman communities.

The unit is comprised of an Administrative area, Operations, Recruitment and Community Relations, Assessment and Evaluation, Multicultural Student Retention Services, Multicultural Student Counseling Services, four student centers (African American, Asian Pacific American, Chicano/Latino, and Native American), and the Talmadge Anderson Heritage House.

The recruitment coordinators travel extensively to meet with students of color in high schools and community colleges. The recruiters present information about WSU and guide students through the admissions process. They also work closely with communities to plan early outreach programs and to bring students to campus.

The counselors serve as academic advisors, advocate for students, assist in problem solving, direct and develop programs, make referrals to other departments and services on campus, and provide information on scholarships, internships, careers, and graduate programs. Each counselor has an office in their respective student center. These student centers offer a number of services such as social support, a study area, and a gathering place for student organizations.

For more information, contact the Office of Multicultural Student Services, Lighty Student Services Building, Room 190, (509) 335-7852.

Museums and Collections

The Museum of Anthropology

The Museum of Anthropology provides exhibits that include human evolution and biological diversity as well as exhibits that focus on cultural similarities and differences in the lifeways of people in past and present societies. Shorter-term exhibits report on faculty and graduate student research projects from around the globe. The museum provides an introduction to the study of human culture. It also serves as a repository for artifacts resulting from WSU research projects, including extensive archeological collections from sites in the Columbia Basin and Snake River regions of Washington. As such, it is integral to the teaching, research, and public service functions of WSU’s Department of Anthropology.

The Museum of Anthropology is located on the first floor of College Hall. Guest speakers and special programs are scheduled throughout the year for those interested in additional exposure to anthropological issues. Group tours may be scheduled two weeks in advance by calling the Museum Curator, Department of Anthropology, (509) 335-3936 or (509) 335-3441.

The Museum of Art

The Museum of Art was established in 1974 around a core collection of American paintings assembled by former WSU President E. O. Holland and former WSU Regent Charles Orton. Dedicated to serving the educational purposes of WSU and the people of the state of Washington, the museum presents a wide variety of changing exhibitions ranging from antiquity to the contemporary, from design and photography to sculpture and painting. Exhibitions originated by the museum staff have toured the nation. The museum also offers a wide variety of speakers, films, and other special events.

The museum’s collection of American nineteenth- and twentieth-century paintings, drawings, and prints has grown in the past years through financial donations and important gifts from collectors and alumni in the Northwest. This permanent collection is seen in a special exhibition each summer.

The exhibition gallery of the Museum of Art is open and free to the public seven days a week from September to July. The gallery is closed for university holidays and in order to install new exhibitions. For more information on hours and exhibitions, call (509) 335-6607. Guided tours for groups are available upon request and free of charge. An active Friends of the Museum association hosts public receptions and supports museum programs through memberships and volunteer work. Call (509) 335-1910 for all details.

Conner Museum

The Charles R. Conner Museum, located on the first floor of Science Hall, exhibits fishes, amphibians, reptiles, a dinosaur skeleton, and several hundred mounted birds and mammals, including deer, antelope, mountain sheep, mountain goat, moose, caribou, cougar, and small species. The displays are open to the public from 8:00 a.m. to 5:00 p.m. every day except university holidays.

The museum also maintains a separate research collection of about 50,000 specimens of birds, mammals, reptiles and amphibians, including skins, skeletons and specimens preserved in alcohol and formalin. These collections are used for teaching and research in anatomy, systematics, evolution, biogeography, ecology and conservation, and are loaned throughout the world for research purposes. The collection is located in Science Hall, Room 101, and is available to qualified workers. Tours can be arranged by calling (509) 335-3515 or (509) 335-1977 well in advance.

Culver Memorial and Jacklin Collection

The Culver Memorial, located in the Physical Sciences Building, houses the Jacklin Petrified Wood Collection. This spectacular collection contains more than 2000 cut and polished specimens of petrified wood from all major localities in the western U.S. It is the largest display of its kind in the western U.S. Also included in the collection is a large selection of cut and polished agate, geodes and dinosaur bone.

The Culver Collection includes over 100 classic rock and mineral specimens from localities throughout the world. Both the Jacklin and Culver Collections may be viewed Monday through Friday, 8:00 a.m. to 5:00 p.m. Group tours may be arranged by calling the Department of Geology, (509) 335-3009.
Drucker Collection
The Minnie Barstow Drucker Memorial Collection of Oriental Art consists of oriental furniture, accessories, art, textiles, and costumes. The collection was given to the university in 1944 by the late Arthur Eillet Drucker in memory of his wife. The Chinese, Korean, and Japanese artifacts were collected during the years the Druckers made the Orient their home. The collection may be viewed in White Hall by writing directly to the Department of Apparel, Merchandising, and Interior Design or by calling (509) 335-3823 for an appointment.

The Historic Textiles and Costume Collection
The Historic Textiles and Costume Collection contains approximately 2000 items of women’s, children’s and men’s clothing and costume accessories from 1835 to the present and quilts and woven coverlets. It also contains a limited number of ethnic textiles and costumes from around the world. The collection is housed in White Hall. Tours may be arranged by calling (509) 335-3823.

James Entomological Collection
One of the largest insect collections in the Pacific Northwest, the Maurice T. James Collection houses over one million insect specimens and an extensive working library. Adult and immature stages of all insect groups and many related arthropods are represented with particular strengths in the flies, beetles, and butterflies. Primarily of regional significance, the collection also includes considerable material from the New World tropics, eastern North America, and Asia. The collection functions essentially as a research facility by providing specimens on loan to recognized scientists worldwide, by offering identification services to university extension entomologists, and by serving as a repository of type specimens and other materials. Public tours and interpretive presentations for groups can be arranged in advance by calling (509) 335-3394. The collection is located in the Food Science and Human Nutrition Building, Room 157.

Mycological Herbarium
The Mycological Herbarium of Washington State University is housed in, and maintained by, the Department of Plant Pathology, third floor, Johnson Hall. The herbarium was founded by Frederick D. Heald, the first chairman of the department, in 1915 and now contains more than 68,000 specimens of fungi. Included are representative materials of all the major groups from the slime molds and true molds to the larger, fleshy mushrooms. The parasitic fungi of northwestern North America have been emphasized; however, through exchange and purchase, representative materials of all groups from all over the world have been incorporated. Loans are freely available to individuals associated with recognized botanical institutions anywhere in the world. Specialists wishing to utilize the facilities of the Mycological Herbarium are welcome and are asked only to inform the Department of Plant Pathology, (509) 335-9541, of their desires in advance so that members of the department may be of maximum assistance to them.

Ownbey Herbarium
The Marion Ownbey Herbarium is an internationally recognized resource for research, teaching, and service. Located in Heald Hall, Room G-9, the herbarium houses 358,000 preserved plant specimens, primarily from the Pacific Northwest but including worldwide collections. In addition to native vascular plants and weeds, the herbarium contains mosses, liverworts, lichens, and special collections of seeds and cultivated plants. The herbarium is open from 9:00 a.m. to 4:00 p.m. five days a week and by appointment by calling (509) 335-3250; staff provide assistance to persons wanting to identify and learn about plants. Facilities include a small reference library, a wet lab, reprint and slide collections, computers, and special botanical indices.

Smith Soil Monolith Collection
The Henry W. Smith Soil Monolith Collection contains more than 150 preserved soil profiles, some as much as eight feet in length, representing soils from all of the geographic regions in the state of Washington and nine of the 11 soil orders in Soil Taxonomy. Soils that are particularly well represented in the collection are those of the Palouse region and those from eastern and central Washington that contain layers of volcanic ash from the many prehistoric and historic eruptions of volcanoes in the Cascade region. The collection is the work of Henry W. Smith, emeritus professor of soils at Washington State University. The soil monoliths constitute a very valuable resource for both teaching and research within the Department of Crop and Soil Sciences. The collection is located in Johnson Hall, Room 114, and may be viewed from an observation window any time the building is open. Persons or groups interested in touring the collection should contact Alan Busacca at (509) 335-1859.

Music and Theatre
The School of Music and Theatre Arts (SMTA) presents a varied program of concerts, recitals, plays, workshops, and master classes each year. These presentations given by faculty, students, and visiting artists are listed in “Arts and Lectures on the Palouse” calendar and in a monthly calendar of events which is available on the SMTA home page or by calling (509) 335-8525, the SMTA events line.

The Music Program, in addition to the presentations listed above, supports several performance organizations with enrollment open to all WSU students by audition. Students interested in continuing their musical experience through participation in one of the ensembles are encouraged to contact the Music Program for further information; call (509) 335-8524.

Theatre presents a widely varied year-round program offering many opportunities for participation: eight productions in Daggy Hall theatres, an eight-week Summer Palace repertory season, theatre for children and young people, and many experimental and student-directed productions. Interested students should contact the Theatre Program at (509) 335-8524 for information regarding any aspect of the program: performance, technical, or management. Auditions are open to all members of the university and community.

Jewett Observatory and University Planetarium
The James Richard Jewett Observatory is the gift of Mr. and Mrs. George F. Jewett of Spokane and is named in honor of Mr. Jewett’s father, a former professor of ancient languages at Harvard University. The observatory houses a 12-inch refractor with a visual lens and a 25-foot revolving dome.

The University Planetarium is located in Sloan Hall, Room 231. Information about open house and group tours of either the observatory or the planetarium can be obtained by contacting the Program in Astronomy, (509) 335-6868.

Speech and Hearing Clinic
The Speech and Hearing Clinic provides complete evaluative and rehabilitative services to students with speech, language, or hearing problems, including communication disorders involving defective articulation, stuttering, voice pitch and quality, and speech and language problems resulting from brain injury or neuromuscular disability. Students with central auditory processing disorders and learning disabilities may receive special help at the clinic. Speechreading and auditory training, as well as evaluations for fitting of hearing aids and assistive listening devices, are conducted.

Application may be made to the Speech and Hearing Clinic of the Department of Speech and Hearing Sciences, Daggy Hall, Room 133, (509) 335-1509.

Student Advising and Learning Center (SALC)
The Student Advising and Learning Center, located in Lighty Student Services Building, Room 260, is designed to help students improve academic performance. Students with questions on academic programs, degree requirements, certification into majors, regulations, and services, or students in need of help with study skills, reading, writing, test taking, or advising should call the center, (509) 335-4357. The center faculty and staff are responsible for:

- Coordination of advising.
- Assistance with study skills.
- Assistance with writing skills (in cooperation with the Writing Lab).
- Assistance with test-taking skills.
- Access to computer-based learning and multimedia development.
- Tutoring in a wide range of subjects.

SALC provides educational opportunities and retention services for students throughout the university. The center offers academic advising and counseling, individual and group tutoring, assistance to students with special learning needs, and media-based learning skills classes. Tutorial assistance in reading, writing, science, math, and study and test-taking skills is available. Tutorial assistance in most General Education Requirement courses is provided.

Students may be assigned an advisor in the SALC program upon entrance to
Student Services and Facilities

the university or as a retention condition. Students may also be referred to the SALC at any time by faculty members, counselors, and others for any of the services it provides. The staff is available daily in Lighty Student Services Building, Room 260, (509) 335-4357.

Student Computing Labs

Student computing labs are located around the campus—public microcomputer labs and special-purpose computer labs.

The public microcomputer labs are made available to all WSU students. Students may elect either to purchase a pass which provides access to any and all public microcomputer labs for $50.00 per semester or to pay $1.50 per hour of lab use. These labs are equipped with IBM and Apple microcomputers. A variety of software and printing services are available. Some of these labs are available 24 hours per day, seven days per week, to facilitate student access. Contact Information Technology at (509) 335-0522 to obtain further information about the public microcomputer labs.

Some departments maintain special-purpose computer labs. These labs are available to students enrolled in certain courses with computer lab fees associated with them. Contact the department to obtain further information about these special-purpose computer labs.

Student Health and Wellness Services

Health and Wellness Services provide primary health care to students, including treatment for acute and chronic illness, injuries, accidents, women’s health, contraception, STDs, food preoccupations/disorders, pregnancy tests, allergy shots, immunizations, wart treatments, counseling, and information on health and preventive care. Our staff of MDs, PAs, Nurse Practitioners, and RNs see patients by appointment, with urgent care for emergencies available as well. Located in the same building with Pullman Memorial Hospital on the south end of campus, the clinic is open 9:00 a.m. to 5:45 p.m., Monday through Friday, and 10:00 a.m. to 2:30 p.m., Saturdays. When the clinic is closed, emergency care can be obtained through the hospital emergency room. Call (509) 335-3575 for information and appointments.

The Health and Wellness Services Wellness Program is staffed by a nutritionist, a substance abuse counselor, a sexuality education coordinator, health educators, and nutrition interns. Located in the Administration Annex building, Room 301, the Wellness Program offices are open from 9:00 a.m. to 5:00 p.m. Monday through Friday. Call (509) 335-9355 for information.

Information Technology Telephone Services

The telephone lines into students’ rooms are operated by WSU. Students are not allowed to bill a third party call to a university telephone number. Students cannot accept collect calls.

Students will be personally responsible for all long distance charges. Recognizing students’ need to take care of business and keep in touch with family and friends away from campus, the Information Technology Help Desk can provide students with a PAC (personal authorization code) number which allows them to make long distance calls at a lower than the direct-distance-dialed rate. For international rates please contact our office. Call waiting, busy-number redial, three-party conference, and electronic voice mail (answering machine) are available as additional line features. Contact the Help Desk, (509) 335-0522, Information Technology Building, Room 2091, between 8:00 a.m. and 5:00 p.m., Monday through Friday.

Women’s Resource Center

The Women’s Resource Center acts as an advocate for diversity by supporting the perspectives of women in institutional goal setting and programming. The purpose of the center is to facilitate a supportive and welcoming environment for women of all races, classes, ages, ethnic origins and sexual orientations.

The Women’s Resource Center provides specialized programs and services which address the unique concerns and needs of women. The Women’s Transit Program and the Sexual Assault Prevention Program are coordinated by the center. Support services for women student organizations are provided, as well as individual referral services to university and community agencies.

For additional information, contact the Women’s Resource Center, Wilson Hall, Room 8, (509) 335-6849. The Women’s Resource Center is open from 8:00 a.m. to 5:00 p.m., Monday through Friday.
Cooperative Courses with the University of Idaho

Cooperative courses between Washington State University and the University of Idaho provide enriched educational opportunities for students of both universities and allow better utilization of supporting resources such as libraries and laboratories. The sharing of faculty and facilities fosters the exchange of ideas and enhances academic ties between the two communities.

Approved cooperative courses are listed in the departmental section of this catalog and include the University of Idaho (UI) equivalent course prefix and number within the course description. Courses are identified as (1) cooperative course taught by UI, open to WSU students, (2) cooperative course taught by WSU, open to UI students, and (3) cooperative course taught jointly by WSU and UI.

Cooperative courses taught by the University of Idaho are footnoted with an * in the Time Schedule. WSU students desiring to enroll in cooperative courses taught by UI will register for the course at WSU but attend class at UI in accordance with the dates and times listed in the WSU Time Schedule. Students will follow the regular WSU registration procedure and will be charged according to the WSU fee structure. Upon completion of the course, the credit and grade will be recorded on the student’s official WSU transcript.

Extended University Services

Extended University Services (EUS) is a multi-faceted organization involved in the outreach efforts of Washington State University. EUS units work with university departments and administrative units to develop and deliver distance education programs, specialized academic program support, conferencing services, professional training, and telecommunication services to people throughout the state of Washington and beyond.

Extended Degree Programs (EDP): EDP supports WSU colleges and departments in delivering selected degree programs and semester-based credit courses to various sites in the state of Washington and around the world. Staff provide course design and delivery, admissions and registration, and advising services. EDP enables the College of Liberal Arts to deliver a BA in Social Sciences by distance learning technologies to adult learners in Washington and throughout North America. Call 1-800-222-4978 for more information.

Independent Study: As part of EDP, the Independent Study Program allows highly motivated individuals to study through flexible enrollment courses (correspondence courses). These courses may be used to fulfill requirements for baccalaureate degrees as well as for personal growth and professional development. Up to 25 percent of the credits for a baccalaureate degree may be taken through flexible enrollments courses from WSU. Catalogs are available through EDP.

Conferences and Institutes (C & I): This division plans and conducts noncredit programs, including conferences, institutes, seminars, short courses, and workshops to sites throughout the state of Washington and beyond. Offices are located in Pullman and Puyallup. The division draws upon the instructional resources of the university and outside content experts to meet dynamic and varied professional continuing education and training needs. Clients include business and industrial firms, government agencies, schools, professional associations and others interested in increasing their knowledge and professional competencies. C & I also programs for faculty development within WSU and serves leisure groups who want to learn through educational travel. Elderhostel, a statewide network of 30 education organizations offering low-cost, noncredit learning adventures for those over 55, is headquartered in C & I. C & I sponsors WSU Elderhostel programs in Seattle and Pullman. Call 1-800-942-4978 for information about available programs.

Tri-Cities University Center for Professional Education: The University Center for Professional Education, located at Washington State University Tri-Cities, expands the programming through that campus with professional education and training programs for businesses, organizations, and professionals.

The Central Administrative Office: The EUS Administrative Office provides overall administrative coordination for the organization and has responsibility for accounting, personnel, and travel.

Washington Higher Education Telecommunication System (WHETS): WHETS, a two-way audio-video interactive microwave system, brings WSU classes and programs to specified sites in the state including the WSU branch campuses in Spokane, Vancouver, and Tri-Cities. Other sites include the Intercollegiate Center for Nursing Education in Spokane, Seattle Central Community College, University of Washington, and Central Washington University, Wenatchee Valley College, and Yakima Valley College. WHETS currently delivers over 80 courses each semester in addition to providing extensive video conferencing services between sites. WHETS is a unit of Educational Telecommunications and Technology and provides technical, academic, and support coordination for courses and events utilizing the system.

Four-Year Degree Agreement Program

Students at Washington State University follow many diverse paths to complete a bachelor’s degree. Some students, however, want to complete their degrees in four years; some want to enter the full-time workforce as soon as possible; others plan to continue their education and do not want to prolong their undergraduate study; and all want to save money.

A Four-Year Degree Agreement (FYDA) is available to any first-time freshman entering WSU who meets the necessary conditions (including being prepared, maintaining adequate progress and good academic standing, seeking and following academic advice) and chooses a participating degree program. Washington State University then agrees to provide adequate advising, available courses, and options for completion, or an alternative to pay the tuition for the student to take an unavailable course or courses in a later term. The FYDA program supports students in other important ways: 1) Students receive a detailed course sequence, showing exactly what needs to be taken in order to complete their degree program; 2) Departments know the students who are participating in the program from their first semester and can give early support and mentoring; and 3) The program coordinator tracks students’ progress and provides support through workshops, newsletters, and individual advising.

Degree programs offering a Four-Year Degree Agreement are indicated by a *FYDA next to the degree program sequence in this catalog. Students who are interested in the program may sign up with their departmental advisor. For more information, contact the Registrar’s Office, P.O. Box 641035, Pullman, WA 99164-1035, or call (509) 335-0349.


University Honors Program

The University Honors Program (UHP) at Washington State University is one of the oldest and most well-known honors programs in the nation. A free-standing academic unit, the UHP offers highly motivated and talented students an alternative curriculum taken in place of general undergraduate requirements. The UHP provides an enriched intellectual experience for its students. They pursue a broad and comprehensive general program as they specialize in their chosen majors. Through completion of an enriched series of small classes, seminars and independent study options, students admitted into the program acquire a greater understanding of the natural and social sciences, of the arts, of language and literature, and of the historical and philosophical development of the cultures of the world. The University Honors Program aims to support the best possible teaching and learning circumstances for participating faculty and students. It has as its primary goal the fostering of genuine intellectual curiosity and the encouragement of a life-long commitment to learning.

Over 900 students are enrolled in the University Honors Program. They come from all departments and colleges of the university, from agriculture to zoology, from engineering to English, from fine arts to economics. Honors is not a major in and of itself. Honors students, like other students, major in particular departments in preparation for professional careers. Yet in place of fulfilling the General Education Requirements expected of other students, honors students pursue an enriched, often interdisciplinary curriculum designed for active learners. During their four years at the university, university honors students receive extensive advising through the Honors Program and through their own academic departments. Honors students and regular students fulfill approximately the same number of required general education hours, but they do so in different classes. Honors courses are small and are...
taught by established faculty members. Based on an enriched, interactive model rather than an accelerated curricular model, honors courses offer students the opportunity to establish close intellectual relationships with their instructors and peers.

Admission to the University Honors Program
Each year approximately 10 percent of entering first-year students are invited to join the University Honors Program. Incoming students are selected on the basis of high school grade point average, scores from college and pre-college testing programs, and information obtained from the student and from high school advisors. During the spring or summer preceding their first year, eligible students will receive letters inviting them to join the University Honors Program. Those who do not receive such letters but wish to investigate possible participation in the program should contact the Honors Center for information.

The eligibility of transfer and foreign students is evaluated on a case-by-case basis. Ordinarily, students are not considered for admission to the University Honors Program after the beginning of their junior year.

Students who are not admitted in the initial selection may petition to enter the University Honors Program at any time after the end of their first semester but no later than the beginning of their junior year. To continue participation in the UHP a student must maintain an overall B+ average (3.2). Students in the University Honors Program are not required to complete the General Education Requirements. For more information on the University Honors Program, please refer to the departmental section of this catalog.

International Programs
International Program (IP) at Washington State University has the overall responsibility for the university’s international activities and promotes, supports, and coordinates them. As the land-grant institution for the state of Washington, internationalization of its curricula and programs is an established priority. Internationalization is the incorporation of appropriate international content, materials, activities and understandings into the teaching, research and public service/outreach programs to enhance their relevance in an increasingly interdependent world.

International Programs at WSU is organized into programmatic areas to serve the university-wide responsibilities of academic support, internationalization of the curriculum, public service/outreach, and research.

International American Language Center
The Intensive American Language Center provides concentrated English language training for nonnative speakers of English who are preparing for university studies or who seek to improve their English for professional or personal purposes. Classes meet four to five hours per day, five days per week for eight-week sessions. There are five eight-week sessions per year. Sessions run concurrently with WSU’s academic calendar. Thus, students who wish to enter WSU and who are otherwise eligible for admission can move directly to university studies upon successful completion of the Language Center curriculum.

The Language Center provides non-university credit classes in reading, speaking, composition, grammar, listening, various special interest courses, and the Test of English as a Foreign Language (TOEFL) preparation, using both classrooms and a microcomputer lab. Advanced students concentrate on academic studies. Students are placed in one of six levels, according to their individual proficiencies in English.

Any non-native speaker of English, who is at least 18 years of age, knows the English alphabet and corresponding sounds, and has completed secondary school may attend the Intensive American Language Center. Students may enroll full- or part-time, depending on their visa status. The Language Center also negotiates special courses or package programs with domestic and foreign agencies on a contract basis. To apply or to obtain more information about the Language Center, contact the Office of International Programs, McAllister Hall, Room 116, phone (509) 335-6675, fax (509) 335-1141, e-mail ialc@wsu.edu, or visit our web site, http://www.ialc.wsu.edu.

Education Abroad provides both undergraduate and graduate students with academically relevant overseas study, and exchange programs and internships.

International Students and Scholars assists international students and visiting faculty at WSU with the legal requirements and academic and social adjustments necessary for a successful educational, research, and cultural experience at WSU.

Intensive American Language Center teaches the English language to international students and scholars, many of whom then attend WSU.

Development Cooperation has administrative responsibility for the establishment, facilitation and coordination of university research, economic development and inter-institutional coordination in developing and industrialized countries.

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Research Facilities

Laboratory for Atmospheric Research
The Laboratory for Atmospheric Research provides a recognized center of atmospheric studies at Washington State University. The laboratory, which is administered through the Department of Civil and Environmental Engineering, provides students with graduate training in the atmospheric sciences. Students are encouraged to participate in the various grant-supported research projects of the laboratory. Since atmospheric research requires an interdisciplinary approach, both the faculty within the laboratory and those who work cooperatively on joint research programs have diverse disciplinary backgrounds. Research areas include those of interest to the citizens and industries of the state, the nation, and the world. Thus, the laboratory is engaged in research aspects of meteorology, atmospheric chemistry, pollution abatement, global climate issues, and effects of atmospheric pollutants. Much of the research involves field measurement programs which have taken the faculty, staff, and students to such diverse places as China, the Antarctic Continent, the Caribbean, and the Pacific Ocean as well as numerous sites in the United States. Sampling platforms used include mobile trailers, towers, aircraft, and ships. Analytical technique development in the laboratory and computerized data interpretation including atmospheric modeling round out the laboratory research.

Electron Microscopy Center
The Electron Microscopy Center (EMC) is a research and training facility for the study of biological and non-biological materials. The EMC provides electron microscopy and light microscopy equipment for observation and analysis of a diverse array of specimens. Students, faculty and staff can access the EMC for formal and informal training, and for conducting research through flexible conditions designed to ensure success in acquiring and analyzing specimen images. The center offers courses in electron microscopy for graduate and undergraduate students each semester.

The EMC maintains two TEMs, a STEM, a SEM and various light microscopes. Three of the electron microscopes also have EDX analyzers for elemental analysis. All necessary ancillary equipment, computers for image processing and analysis, and three photographic darkrooms are also maintained for student and faculty use. The center provides project consultation and has a skilled staff capable of assisting students and faculty in a wide range of research projects. Faculty and students are welcome to visit the EMC located on the ground floor of Science Hall. Inquiries about services and courses offered or class tours of the facilities can be made by calling (509) 335-3025.

Environmental Research Center
The Environmental Research Center is an all-university research unit. The center is the focal point for university development of interdisciplinary research on problems related to the environment. It provides an organizational and administrative structure to accommodate interdisciplinary environmental research projects which cut across departmental and college boundaries.

The center is closely integrated with the academic Program in Environmental Science and Regional Planning, and students are encouraged to participate in the research projects carried out through it. In order to stimulate an awareness of environmental problems and contributions the university can make in solving them, the center acts as an information source for faculty and students of the university and for citizens of the state. It also assists in securing financial support for research projects involving faculty and students and acts as a liaison unit for inter-university and other cooperative activities dealing with environmental matters.

The center provides some direct support for graduate students and has sponsored a number of conferences and seminars on regional environmental problems.

GeoAnalytical Laboratory
The GeoAnalytical Laboratory is housed in the Geology Department and provides elemental and isotope analyses of rocks and minerals using the most up-to-date analytical equipment and radiocarbon age dating. Micron-sized particles are analyzed on an automated Cameca electron microprobe (elemental analyses) and/or an automated Siemens X-ray powder diffractometer (phase identification and structure). Powdered mineral separates and whole rock samples are analyzed on automated XRF equipment (27 major and trace elements) and/or on the ICP/MS (routine analyses for rare earth elements and Th, Pb, Hf, Ta and U). Lower detection limits for XRF are approximately 10 ppm; but for the ICP/MS may be as low as 0.1 ppb in hydrous samples. A gas source mass spectrometer is also available for oxygen and hydrogen isotope determinations.

Other facilities available in the laboratory include rock-slabbing, the making of thin and polished petrographic sections, and microphotography.

Information Technology
Information Technology (IT) provides an extensive offering of information processing services to the university community, as well as to a number of other governmental agencies and institutions in the Pacific Northwest. The primary resource for computing power is an IBM 3090-400J, an 80 MIP (Million Instructions Per Second) processor with 256 megabytes of real memory, 512 megabytes of expanded memory, 64 I/O channels, over 118 gigabytes of on-line disk storage, 8 cartridge tape drives, two reel tape drives, a 20,000 magnetic tape library, two impact printers, and two high-speed laser printers. Also available to users are the computing resources of a VAX 8350, a VAX 6320, a VAX 8200 and an AT&T 3B2/1000-80 supporting dial-in access, plus a variety of IBM and Apple microcomputers, and several special purpose computing systems.

IT supports in excess of 4,000 computer workstations on both dedicated and switched and ethernet data communications networks. The workstations have access to the central administrative systems, an on-line library catalog, and all of the systems resident on IT’s processors. Communication links are also available to colleagues at other institutions and to supercomputing facilities via national and international networks such as NorthWestNet and NSFnet.

IT makes available to its users both interactive and batch computing support. The basic operating systems include VM/CMS, MV5, VMS, and UNIX. Available through these systems are programmer utilities, compilers, modeling languages, statistical packages, text processors, mathematical routines, graphics programs, image analysis systems, word processors, office automation systems, spreadsheet packages, database systems, and a myriad of other software products.

International Marketing Program for Agricultural Commodities and Trade Center
IMPACT is the acronym for the International Marketing Program for Agricultural Commodities and Trade established in the College of Agriculture and Home Economics in June 1985.

The IMPACT Center funds interdisciplinary research, extension and teaching to assist the state in exporting its agricultural products. Its major thrusts are in uncovering marketing opportunities, developing strategies to exploit those opportunities, solving economic and technical impediments to current agricultural exports, and finding alternative products or processes with export market potential.

The IMPACT Center receives its funding from state, federal and private sources. Its programs are closely integrated with those of the Department of Agriculture and of WSU’s College of Agriculture and Home Economics. In carrying out its mission, the IMPACT Center funds faculty and staff for both long- and short-term assignments. Personnel are housed in the appropriate academic department or outlying station. While the IMPACT Center gives assistance to departments in providing graduate-level courses in international agricultural marketing, it does not offer graduate programs.

Nuclear Radiation Center
The Nuclear Radiation Center (NRC) is an education, research and service facility supporting the entire university. The center has a one-megawatt TRIGA reactor, a cobalt-60 irradiation unit, and numerous state-of-the-art radiation detectors and counting systems.
The center supports undergraduate and graduate education, with both facilities and instruction. Graduate students in engineering, physics, chemistry, geology, anthropology, food science, animal science, veterinary science and other fields may conduct their thesis research at the NRC.

Trace element analysis using neutron activation analysis (NAA) is routinely available at the center. This technique is applicable to analytical chemistry, geology, material science, biomedical research, environmental science, physics and other areas. Consultation is available to investigators with elemental analysis needs.

Radiation detection and analysis is practical for many radionuclides. Gamma ray spectroscopy, using Ge(Li), LEP or NaI(Tl) detector systems, and isotopic identification are available. Liquid scintillation and alpha-beta counting equipment is available also.

Neutron irradiation service is provided by the NRC’s one-megawatt fission reactor. The reactor also supports other research projects. Gamma irradiation services are offered on the cobalt-60 unit.

The NRC provides laboratory space for radiochemistry researchers and other projects and programs. A wide range of services and capabilities make the Nuclear Radiation Center ideally suited to support elemental analysis or radiation-related studies at Washington State University. Tours of the reactor facility can be arranged by calling (509) 335-7592.

Social and Economic Sciences Research Center

The Social and Economic Sciences Research Center has three primary goals: (1) to conduct research in the social, economic, and behavioral sciences that is responsive to the needs and concerns of the state, region, and local communities; (2) to maintain a telephone, mail, and face-to-face survey capability that can be utilized by university faculty and others for conducting research that improves the quality of social science, behavioral, and economic data; and (3) to provide research training for both undergraduate and graduate students in the social sciences. The clientele of the Social and Economic Sciences Research Center include the students, faculty, and administration of Washington State University, and the citizens and agencies of the state. Research facilities include the Public Opinion Laboratory, consisting of 30 personal computers, interviewing stations, laser printers, and related mail survey equipment, and a data processing center. The professional-technical staff of the center provides assistance in all facets of the research enterprise.

Faculty and students from social, behavioral, economic, and educational disciplines participate in center projects. Cooperation with other research centers and departments in the university lends a strong interdisciplinary emphasis to the work of the center.

Further information may be obtained by calling (509) 335-1511.

State of Washington Water Research Center

Federal legislation establishing the State of Washington Water Research Center, along with the 54 other water research centers and institutes throughout the United States and territories, outlines three major directives:

1) support of research in multi-disciplinary and interdisciplinary water-related studies;
2) assistance in the education and training of undergraduate and graduate students toward degrees in water-related professions through active participation in research projects; and
3) dissemination of results of research and other current information on water-related issues through the distribution of technical and popular publications and through the sponsorship of conferences, seminars, workshops, and other meetings.

The State of Washington Water Research Center was established in 1964 as a joint agency of Washington State University and the University of Washington with the directorate located in Pullman, at the land-grant university. Programs and policies of the center are determined by the director with the assistance of the Joint Scientific Committee, composed of faculty members from the state’s universities and representatives from state and federal agencies. Washington State University, the University of Washington, The Evergreen State College, and the three regional universities have all participated in the center’s program through specific research projects, making the center a truly statewide activity.

The center has fostered extensive research on Washington state’s water-related problems. Much of this research is also of regional and/or national significance. By 1996, over 400 projects had been funded through the center and completed with technical reports and journal articles distributed to the professional community and appropriate agencies. Nearly 1000 undergraduate and graduate students have been assisted in meeting their educational goals through their work on these projects to become the water scientists and engineers of today and tomorrow.

The research projects in the center, supported by the federal cooperative program and other grants, may be basic or applied in nature, depending upon the interests of the sponsor. The center does not maintain a regular scientific or engineering staff, but instead provides funds to individual investigators through departments and research units of the state’s universities.

Further information regarding the program may be obtained by writing the Director, State of Washington Water Research Center, Washington State University, P.O. Box 643002, Pullman, WA 99164-3002, or by calling (509) 335-5531.
General Information

Admission to Washington State University is granted without regard to age, sex, race, religion, color, handicap, national or ethnic origin, or marital status. Admission to the university is granted to eligible applicants prior to or to registration but not after the tenth day of classes for each semester.

The following information relates to admission of new students only. It is not applicable to students previously enrolled in Washington State University during the regular school year.

It is the policy of Washington State University to admit all applicants if the total evidence (academic records, test results, recommendations, and interviews) indicates a reasonable probability of success. The total number of new students admitted for any one semester or in any specific department or program will be based on the number of students for whom facilities can be made available.

Students who fail to meet the published admission requirements should contact the Office of Admissions for further information. Exceptions to the admission requirements may be made only by the Admissions Subcommittee.

Application forms are available in the high schools and community colleges of Washington and from the Office of Admissions, P.O. Box 641067, Pullman, WA 99164-1067, or by calling (509) 335-5586.

Any freshman applicant planning to compete in intercollegiate athletics must submit scores on the College Board Scholastic Aptitude Test (SAT) to meet National Collegiate Athletic Association (NCAA) regulations.

Retention of Students

The grade point average for freshmen entering from high school in the fall semester 1995 was 3.38. Of the 2,537 freshmen who entered in the fall semester 1995, 2,395 were enrolled in the spring of 1996, and 2,095 continued their enrollment in the fall semester 1996.

Freshman Admission Requirements

Freshman applicants will be considered for admission on the basis of an Admissions Index (AI) which will be calculated using the high school grade point average and test information taken from the results of the Washington Pre-College Test (WPCT) if taken prior to June 1, 1989, the Scholastic Aptitude Test (SAT) or the American College Test (ACT). The AI is calculated on the official transcript information provided at the time of application. In addition, freshman applicants will be required to submit a high school transcript showing completion of no less than the following course work in the fall semester 1996.

English: Four years (three of which must be composition and literature).
Mathematics: Three years college preparatory mathematics (one year of geometry and two years of algebra including an introductory component of trigonometry).
Science: Two years (including at least one year of laboratory science: biology, chemistry or physics).
Social Science: Three years (including at least one year of history).
Foreign Language: Two years of a single foreign language (or approved sign language).
Fine Arts: One year of fine, visual or performing arts or one additional year of academic elective.

It is strongly recommended for students planning to major in science or science-related fields to complete at least three years of science (including at least two years of laboratory science).

Applicants who have not graduated from high school at the time of application must maintain a satisfactory record, complete all required courses specified for admission to WSU, and provide evidence of graduation prior to enrollment.

Freshman applicants over 21 years of age should contact the Office of Admissions concerning requirements for re-entry students.

Graduates of unaccredited high schools may be required to pass special validating examinations and should write to the Director of Admissions for further information.

Preference will be given qualified freshman applications received by May 1. Applications for spring semester admission are accepted from September 15 to December 1 (or until the class is filled).

A complete application includes the application form, the official high school transcript, the Washington Pre-College Test Data Sheet or the score report of the SAT or ACT, and a $35 nonrefundable application fee.

Students who have been offered admission to the university may be invited to join WSU's Honors Program if they have shown unusual scholastic ability and intellectual achievement in high school. Transfer and international students are admitted to the Honors Program on an individual basis after eligibility has been determined. Questions should be directed to the University Honors Program, P.O. Box 645120, Pullman, WA 99164-5120, or call (509) 335-4505.

Transfer Admission Requirements

Transfer students with 27 semester (40 quarter) hours of transferable college credit at time of application will normally be admitted as space allows if they show evidence of a 2.0 (C) or higher cumulative grade point average in transferable work completed at an accredited post-secondary institution.

Transfer applicants with fewer than 27 semester (40 quarter) hours of transferable credit must also meet the admission requirements for freshmen, including meeting the current admission index (based on high school grade point average and standardized test scores) and course requirements. Students with fewer than 27 semester hours of credit should refer to the Freshman Admission section in this bulletin for details on admission requirements. In all cases, students must maintain a cumulative college grade point average of at least 2.0 in transferable work to remain eligible for admission.

For fall semester, qualified students will be offered admission on a first-come, first-served basis from December 1 to May 1 (or until the class is filled). For spring semester, qualified students will be offered admission on a first-come first-served basis from September 15 to December 1 (or until the class is filled).

Eligible transfer students who hold the approved Associate Degree from a Washington community college who apply before May 1 for fall or December 1 for spring, but after the class is filled, will be assigned a priority number to ensure priority consideration for the next available term.

A complete application includes the application form, an official transcript sent directly from each college or university attended showing work completed at the time of application, and a $35 nonrefundable application fee. Final and complete transcripts must be submitted prior to the student’s initial enrollment. Students must maintain a minimum 2.0 cumulative g.p.a. in all transferable credits to remain eligible for admission. Students whose cumulative grade point average falls below 2.0 in all transferable college work will not be allowed to enroll.

Transfer Credit Policy

College-level work completed at institutions which are regionally accredited is given appropriate credit upon transfer to Washington State University.

The maximum transfer credit allowed from accredited two-year community or junior colleges, or from CLEP, AP, IB, or military credit shall be 60 semester (90 quarter) hours toward a baccalaureate degree irrespective of when those credits were earned. The maximum allowable credit toward a four-year degree from a four-year institution or from a combination of all institutions shall be 90 semester (135 quarter) hours. For a five-year degree program the maximum credit allowed for transfer from a four-year institution or a combination of all institutions shall be 120 semester (180 quarter) hours of credit.

Associate Degree Transfer

Students who have completed an approved Associate of Arts or Associate of Science degree at a Washington community college or the Associate of Arts - Oregon Transfer degree from an Oregon community college, including a course pattern which approximates the General Education Requirements (GERs) for graduation from Washington State University, as determined by the Office of Admissions at Washington State University, will be considered to have fulfilled the lower-division General Education Requirements for graduation. Students will also be required to meet the upper-division General Education Requirements as well as any departmental and college graduation requirements.

Washington State University recognizes academic credits earned at other collegiate institutions which are essentially equivalent in academic level...
and content to work offered at WSU. Toward this end, the university subscribes to the “Policy on Inter-College Transfer and Articulation Among Washington Public Colleges and Universities” endorsed by the public colleges and universities of Washington and the State Board for Community and Technical Colleges and published by the Higher Education Coordinating Board. The policy deals with the rights and responsibilities of students and the review and appeal process in transfer credit disputes. Transfer students are encouraged to contact the Office of Admissions, (509) 335-5586, with any questions regarding the transfer of credit.

Adult Student Admission
Washington State University recognizes that students who have been away from the classroom for extended periods of time may have special needs. Therefore, in accordance with the policies set forth by the Higher Education Coordinating Board, applications from students who are 21 years of age or over may be considered for admission on the basis of alternative criteria. Students are encouraged to contact the Office of Admissions for details.

Admission to WSU Spokane, WSU Tri-Cities, WSU Vancouver
The WSU branch campuses, located in Spokane, Tri-Cities, and Vancouver, offer a variety of undergraduate and graduate degree programs. All three branches have graduate education; WSU-Tri-Cities and WSU Vancouver also offer baccalaureate degrees.

WSU-Tri-Cities and WSU Vancouver provide upper-division undergraduate education for individuals in those urban areas. Students need to complete their lower-division course work before enrolling at a branch campus. In some instances, students are allowed to attend a local community college and a WSU branch campus concurrently. Contact the branch campus directly for more information about this policy as well as specific admission requirements.

Academic programs offered and branch campus addresses are listed on pages 33 and 34 of this catalog. Applications can be obtained from the branch campuses or the Pullman Office of Admissions. A complete application includes the application form, an official transcript sent directly from each college or university attended showing work completed at the time of application, and a $35 nonrefundable application fee. Applications will not be considered or processed after the tenth day of classes for any semester. Final and complete transcripts must be submitted prior to the student’s initial enrollment.

The policies regarding the transfer of credit are described within the Transfer Admission Requirements as explained above.

Former Students Returning Not Enrolled the Previous Semester
Students formerly enrolled at Washington State University and who wish to return must submit a Former Student Application for Admission. Preference will be given to applications received by May 1 for fall semester and December 1 for spring semester. Applications submitted after the tenth day of classes, in any semester, will not be considered.

Former students returning whose previous academic record at Washington State University is unsatisfactory will be required to follow established academic reinstatement procedures prior to admission.

Former students returning who have attended other institutions since last enrolled at Washington State University must submit an official transcript directly from each institution attended. Applicants will normally be required to have at least a 2.0 (C) cumulative g.p.a. in all such work.

Requests for a Former Student Application should be made to the Office of Admissions.

Credit and placement may be granted for students who submit scores of three or higher on the College Board Advanced Placement (AP) Examinations (four or higher for English). The College Board Advanced Placement Program (CLEP) also offers credit. Credit is given for some CLEP general examinations. Subject examinations of CLEP yield variable credit as determined by the appropriate academic departments. No CLEP or AP credit will be granted to students with 60 or more semester hours of credit.

Foreign Student Admission Requirements
Washington State University encourages the application of qualified students from other nations to complement its cosmopolitan student community. Applicants must submit official copies of all academic records, the Test of English as a Foreign Language (TOEFL) scores, and evidence of adequate financial resources to meet the costs of the proposed study. Each application is carefully considered on its individual merits.

High School Cooperative Program
High school students may enroll as part-time students at Washington State University provided they are admitted to the university as space allows and pay the appropriate fees. Such enrollment is for high school credit only.

Limited Enrollment Programs
Since academic departments may establish additional requirements for admission or certification to specific programs, eligibility for admission to Washington State University does not ensure acceptance into any department or program as a certified major and degree candidate. Several academic programs including, but not necessarily limited to, architecture, business administration, communication, computer science, construction management, economics, education, engineering, fine arts, hotel and restaurant administration, interior design, landscape architecture, mathematics, music, nursing, psychology, pharmacy, and veterinary medicine are unable to accept all interested students. In these situations, and others which may arise in the future, the most highly qualified students will be selected up to the enrollment limits in the specific programs. Students applying for admission to selective programs should contact the Office of Admissions regarding special requirements and application deadlines. For instance, applicants for veterinary medicine must apply by October 31; pharmacy by March 1; nursing by February 15 for fall and September 1 for spring. Deadlines are subject to change.

Selection of a Major
Students seeking a university degree must organize their efforts in a particular department or group of related courses. This is the student’s major interest area. Some academic majors have specific requirements which must be met before a student is allowed to certify a major. These requirements are listed in the departmental section of this catalog.

If an entering freshman knows with reasonable certainty what the major interest is to be, that interest may be specified on the application for admission. Students may, if they choose, defer this selection until, but not beyond, the end of the sophomore year. Each freshman is assigned an advisor in the major interest area by the Student Advising and Learning Center. This advisor can be changed if the student’s original interest should change. Students choosing not to specify a major interest area will be assigned to a general advisor.

Students with declared majors who have met the departmental requirements may be eligible to certify a major after the completion of the freshman year (24 semester hours). The chair of the major department then becomes the advisor of record.

Students with advanced standing who transfer more than 24 semester hours normally are certified upon admission as departmental majors unless they are uncertain about their majors or have not met departmental certification requirements. Transfer students who are not certified to a major are assigned to advisers in their areas of interest by the Student Advising and Learning Center.

Students interested in completing a minor or second major should consult the department concerned. Formal certification of a minor or second major is completed after the student has finished 90 semester hours. Approved minors are identified in the departmental section of this catalog.

Credit by Examination
Recognizing the natural ability and education experience of many of its applicants, Washington State University has developed a broad program of credit by examination. Credit and placement may be granted for students who submit scores of three or higher on College Board Advanced Placement (AP) Examinations (four or higher for English). The College Board College Level Examination Program (CLEP) may also yield credit. Credit is given for some CLEP general examinations. Subject examinations of CLEP yield variable credit as determined by the appropriate academic departments.

Advance Payment on Tuition and Fees
All undergraduate applicants, except former students returning, special students, contract students, and foreign students living outside the USA (except Canada), are required to submit a nonrefundable advance payment on tuition and fees in the amount of $50 prior to final admission. The advance payment will be re-
quested of those applicants who are eligible for admission and should not be submitted until notice of eligibility is received by the applicant. The payment should be sent directly to the Controller, WSU, Pullman, WA 99164-1025, not later than May 1 for freshmen and transfers seeking admission for the fall semester. The payment deadline is December 1 for all spring semester applicants.

Graduate Admission Requirements
Applicants for admission to the Graduate School must meet the special requirements of the Graduate School and the particular program desired. For complete information, refer to the Graduate School listing in this catalog.

Estimated 1997-98 Undergraduate Yearly Expenses

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<td>$17,950</td>
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</table>

Note: The above costs are subject to change.

Other Costs
$120 Summer New Student Orientation Program.
$ 60 Security deposit required of those living in residence halls.
$ 39 Motor vehicle registration for on-campus students.
$ 45 Motor vehicle registration for off-campus students.

Tuition and fees are due the first day of each term. Incoming students receive information about registration and orientation activities prior to coming to campus.

Suggested methods of payment are International Postal Money Orders or Checks, traveler’s checks, and bank money orders which are payable through a United States financial institution. Selected credit cards may be used to pay for anything on student accounts. Other methods of payment may subject you to charges for expenses incurred by Washington State University to collect US funds.

Note: Your registration for courses at Washington State University constitutes a legal obligation to pay tuition and fees, subject to the University’s Refund Policy if you officially withdraw. You will be charged a $15.00 processing fee for any dishonored check drawn by you or others for your account.

Student Financial Assistance/Scholarships
Federal assistance programs include Perkins Loans, Federal Family Education Loan Program (FFELP), Pell Grants, Supplemental Educational Opportunity Grants, Federal College Work Study employment, and Health Professions and Nursing Loans. State-sponsored programs include Tuition and Fee Waivers, State Work Study employment and State Need Grants. University sources of aid include scholarships and institutional grants.

Students wishing to apply for financial aid to attend WSU must submit the federal form called the Free Application for Federal Student Aid (FAFSA). These applications are available from all colleges and universities, public high schools, and public libraries. Be sure to list WSU as a school to receive your data. Our Title IV Code is 003800. Your application must be received by the Federal Processing Center by March 1 to be considered an on-time applicant. Please allow 7-10 days for mail time. If you miss the priority deadline, we still encourage you to apply. After the March 1 deadline, aid is awarded on the basis of availability. Loans are available to all students. Questions should be directed to the Office of Student Financial Aid, Lighty Student Services Building, Room 380, P.O. Box 641068, Pullman WA 99164-1068, (509) 335-9711.

A wide variety of scholarships are also available to new and continuing students. These opportunities may be through the university-wide application, the student’s academic college or department, or through outside scholarship donors. Application requirements and due dates vary and are listed in the brochure, Financial Aid and Scholarship Opportunities. Questions should be directed to the Office of Scholarship Services, Lighty Student Services Building, Room 380 H, P.O. Box 641069, Pullman, WA 99164-1069, (509) 335-1059.

Students with Disabilities
The state of Washington administers several programs of assistance to disabled students. Blind students who are residents of the state of Washington may receive financial assistance under provisions of either RCW 28B.10.210 through 28B.10.220 or RCW 74.16.011 through 74.16.183. Inquiries concerning eligibility under this program should be addressed to Services for the Blind, 3411 South Alaska Street, Seattle, WA 98118.

Other students or prospective students who are residents and have a vocational handicap may be eligible for assistance through the vocational rehabilitation program administered by the state of Washington. Information concerning eligibility should be directed to the Department of Social and Health Services, Division of Vocational Rehabilitation, Olympia, WA 98504.

Federal Veterans Benefits
The Veterans Affairs Office cooperates with the Veterans Administration in carrying out the provisions of the public laws established to give educational benefits to veterans and qualifying dependents of veterans whose death or permanent and total disability is service connected.

Students should apply for admission to the university and for their VA benefits simultaneously. Application for benefits should be made to the WSU Veterans Affairs Office. There is currently at least a two-month delay between approval of the application and receipt of the first monthly benefit check for most students.

Students receiving benefits may be eligible for tutorial assistance or for Veterans work study. Information and application forms for all veterans programs may be obtained from the Veterans Affairs Office, French Administration Building, Room 346, Pullman, WA 99164-1055, or by calling (509) 335-1857.

Waiver of Fees for Children of Law Enforcement Officers and Firefighters
Students who are the children of law enforcement officers or firefighters who lost their lives or became totally disabled in the line of duty while employed by any public law enforcement agency or full-time or volunteer fire department in the state of Washington may be exempted from the payment of tuition. Washington law defines a totally disabled individual for waiver purposes as a person who has become permanently disabled for life by bodily injury or disease and is thereby prevented from performing any occupation or gainful pursuit. Students claiming this special exemption should apply to the Veterans Affairs Office, French Administration Building, Room 346, and provide legal documentation of the death or disablement under the conditions prescribed for eligibility in RCW 28B.15.380.

Waiver of Fees for Persons Age 60 and Over
Persons age 60 or over who are residents of the state of Washington may enroll under the tuition and fee waiver. Applicants will be asked to sign a statement that courses taken under the fee waiver will not be used toward credentials, salary schedule increases or degrees. Tuition-exempt students will be admitted to class on a space-available basis. All students enrolling under the fee waiver are responsible for paying a $5 nonrefundable registration fee, plus any special course fees, or other fees as appropriate.

Individualized instruction such as independent study, thesis, dissertation, research, internships, tutorials, private lessons, practica, or self-sustaining courses (including summer session) may not be taken under the fee waiver.

Credit Enrollments: Enrollment for credit under the fee waiver is limited to 6 hours per semester. Applicants must be admitted to the university and obtain the fee waiver form from the Registrar’s Office, prior to registration. Detailed procedures for credit enrollments under the fee waiver are listed in the Time Schedule.

Audit Enrollments: Auditing under the fee waiver is limited to two courses per semester. Laboratory courses may not be audited. Applicants wishing to audit should report to the Registrar’s Office during the first week of classes to obtain the permission to audit card. The instructor’s signature is required for auditing and cannot be obtained prior to the first day of classes.
Waiver of Fees for WSU Staff/Faculty

A fee waiver option is available to full-time classified staff, faculty, and exempt employees who wish to enroll for up to 6 credits per semester or 4 credits in summer session. Employees enrolling for more than the credit limit pay full fees based on residency status for all credits over the limit. Qualified personnel who wish to enroll under this program must follow regular admission procedures and present a completed staff/faculty registration authorization form at the time of enrollment. Complete information on this fee waiver program listed in the Time Schedule.

Waiver of Fees for State of Washington Classified Employees

A fee waiver option is available to full-time permanent classified employees of a state agency who have been certified by the agency as eligible. The state employee must be admitted to the university and submit an approved tuition waiver request form to the Registrar's Office 15 working days before the beginning of each semester. Participants will be assessed a $30 nonrefundable fee and are subject to the same limitation as fee waiver students age 60 and over, listed above. Contact the branch campus registration office or the Pullman Registrar's Office for forms.
Housing

Twenty-one residence halls, including co-educational, single-sex and age-restricted halls, provide space for 4,600 students at the university. Additionally, 2,200 students reside in Greek chapter houses. Many of these living communities focus around particular academic, social or international issues. These include a Scholars Hall, Wellness Hall, and a Math, Science and Engineering Hall, as well as an International House and halls designed specifically for the success of new students. Twenty-six (Inter)National Fraternities and 14 (Inter) National Sororities currently maintain chapters ranging in size from 40 to 110 people. Most sororities and fraternities maintain chapter houses. Facilities for physically challenged students are also provided.

Students living in residence halls, fraternities and sororities elect their own officers, and each community affords many opportunities for leadership experience. The Residence Hall Association acts on behalf of the residence halls, as well as coordinates university-wide hall programming. Panhellenic and Interfraternity Council are the governing bodies for the Greek system and work together to promote scholarship and other programming activities.

Residence hall information may be obtained by writing to Housing Services, Streit-Perham Administrative Office, P.O. Box 641726, Pullman, WA 99164-1726. For information on sororities and fraternities, please write to Panhellenic and/or Interfraternity Council, Streit-Perham Administrative Office, P.O. Box 641724, Pullman, WA 99164-1724.

Housing Regulations

All single undergraduate freshmen under 20 years of age are required to live in organized living groups which are officially recognized by the university (residence halls, fraternities, and sororities) unless they are residing with parents or legal guardians. Exemptions are granted when students demonstrate to Student Affairs that (1) they have attended an institution of higher education as regularly enrolled students for at least two regular semesters or three regular quarters (30 semester hours), (2) they are living with immediate family in a family situation (mother and/or father, legal guardian, married brother or sister, aunt or uncle, grandparents qualify as immediate family), (3) they have secured a statement from a physician that residence in a living group would have detrimental effects on the student’s physical health or emotional well-being, (4) they would experience undue financial hardship.

Residence Halls and Dining Centers

Washington State University can normally provide space in its residence halls for most beginning students who request it. The estimated cost of room and board per person, multiple occupancy with a level-two dining account for the 1997-98 academic year is $4,426. This amount is to be paid prior to registration or on an arranged installment basis. A security deposit and a signed housing and dining contract are required before space can be reserved.

A student desiring to cancel an advance room reservation and receive a partial refund of the security room deposit must notify Housing Reservations for Residence Halls, Streit-Perham Administrative Office. Once the applicant has been assigned to a hall, the security deposit is initially held to ensure occupancy of the space and then to guarantee against damage, breakage, and loss during the student’s stay in the hall. The deposit is held until the individual permanently leaves the residence hall system.

All students residing in the residence halls purchase the Residence Dining Account for use in residence hall dining centers. The dining centers are managed by trained food service personnel and are operated on a nonprofit basis.

The Board of Regents establishes rules for the use of residence halls and other university housing. The university reserves the right to use the unassigned beds in any of the residence halls at any time.

Washington State University is not liable for the loss of money or valuables by any person, or for the loss of, or damage to, any resident’s property, or personal injury sustained on the premises. It is urged that appropriate insurance be obtained prior to hall occupancy.

Family/Graduate Student Housing

The university maintains 694 unfurnished apartments (one-, two-, and three-bedroom) for families and 39 furnished, studio apartments for unmarried graduate students. Furniture may be rented on a piece by piece or full apartment basis for family apartments. Apartments are assigned from a waiting list based on the date the completed application and $60 refundable deposit is received. Units for use by handicapped students are available on a limited basis. Information and applications may be requested by calling Housing Reservations at (509) 335-4577. Written requests may be mailed to: Housing Reservations, WSU Housing Services, P.O. Box 41726, Pullman, WA 99164-1726.

Single Student Apartments

The university operates 266 apartments that are available to unmarried students desiring apartment-type living. Sophomores and above are eligible for this type of housing. Apartments are rented only to full groups (one person per bedroom) of the same sex. Units are two-, three-, and four-bedroom and are completely furnished except for linen, kitchen utensils, cleaning equipment, and study lamps. Assignments are made from a waiting list based on the date a completed group application is received. Information and applications may be requested by calling Housing Reservations at (509) 335-4577. Written requests may be mailed to: Housing Reservations, WSU Housing Services, P.O. Box 641726, Pullman, WA 99164-1724.
Tuition and Fees

Tax sources of the state finance the major portion of facilities and operation of the instructional programs, student services, and related activities. Students share in the costs by paying tuition, fees, and other charges as established by the Board of Regents.

Tuition, fees, and other charges are subject to change and are effective when established by the legislature of the state of Washington and adopted by the WSU Board of Regents. The amounts listed below were estimated at the time of publication and are for advisory purposes only. Pending legislation may result in changes following publication of this catalog.

Payment of registration fees is due on or before the first day of the term.

### ESTIMATED 1997-98 REGISTRATION FEES

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<th>Undergraduate</th>
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<tr>
<td><strong>FULL-TIME FEES</strong></td>
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<td>$4234.00</td>
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<tr>
<td>Resident (19 hrs and above)</td>
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<tr>
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<tr>
<td>Resident-Gulf War Veteran</td>
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<table>
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1. Fees are based on credit hour enrollments: 1-9 credits are charged part-time fees; 10-18 credits are charged full-time fees; 19 credits and above are charged full-time fees plus an additional charge per credit hour for each credit over 18. The credit hours listed in this table are for fee purposes only. Full-time enrollment is normally 12 credit hours. See definitions listed in the catalog.
2. The special reduction in fees for Persian Gulf veterans is available for students previously certified for this exemption. This exemption expires on June 30, 1999.
3. The special reduction in fees for Vietnam Veterans is available for students whose true, fixed, and permanent home and place of habitation in the state of Washington was established no less than 12 consecutive months prior to the semester for which residency is sought. The term domicile denotes a person’s true, fixed, and permanent home and place of habitation.

### OTHER FEES AND CHARGES

- **Adding a course charge for each course added after the 30th day or dropped after 10th day of semester** $5.00
- **Admission application, undergraduate (nonrefundable)** $35.00
- **Basic Skills Proficiency Test** $35.00
- **Copyright** $20.00
- **Dishonored checks, service charge** $15.00
- **Entrance qualifying graduates of unaccredited high schools** $10.00
- **Foreign language reading examination** $10.00
- **Foreign Student Orientation** (required of all new foreign students) $25.00
- **Graduate School application** $25.00
- **Graduation application, bachelor’s degree** $27.40
- **Graduation application, master’s and doctor’s degrees** $43.75
- **Cougard card, charge for replacement** $5.00
- **Late payment after third week of semester** $50.00
- **Late registration on or before 10th day of semester** $25.00
- **Late registration after 10th day of semester** $100.00
- **Medical expense insurance (estimated annual cost)** (optional for all but foreign students) $450.00
- **Microfilm** (applicable to PhD and EdD degree candidates only) $55.00
- **Place Waste Bureau Credential Service** (fee assessed after graduation for each set of credentials) $5.00
- **Re-enrollment fee** (charged to students who pay tuition and fees after disenrollment for nonpayment) $100.00
- **Sponsored Foreign Student Administrative Charge** (each term) $225.00
- **Sports Pass (optional)**
  - Fall and Spring Semester All-Sports Pass $70.00
  - Fall Semester Sports Pass $60.00
  - Spring Semester Sports Pass $35.00
- **WSU Health and Wellness Services Fee (per semester)** $63.50
- **(fee assessed to every student registered for 7 credits or more)**
- **Teacher’s Statutory Certification** $22.00
- **Transcript (per copy)** $3.45
- **Veterinary Medicine application** $25.00
- **Washington Student Lobby (optional)** $1.00

**Note:** Overdue accounts owed the university will prevent release of transcripts and enrollment. Registration is not complete until all of the student’s tuition and fees are paid.

### Resident Status

Residency for tuition and fee purposes is determined by the Washington State Legislature.

The administration of resident status shall be the responsibility of the Board of Regents. The Office of Student Affairs is assigned the responsibility to represent the Board of Regents on questions of resident status.

A resident student is one who is either financially dependent upon a parent or legal guardian who maintains a bona fide domicile in the state of Washington or a financially independent student who maintains a bona fide domicile in the state of Washington for other than educational purposes. Financial dependence or independence shall be determined by the amount and source of student finances and whether or not the student has been claimed as a deduction on federal income tax forms in the calendar year immediately preceding the semester for which residency is sought. The term domicile denotes a person’s true, fixed, and permanent home and place of habitation.

Active duty U.S. military personnel stationed in Washington may request a waiver of non-resident fees through the WSU Veterans Affairs Office. Their spouses and dependent children shall be classified resident.

Evidence to be considered in verifying Washington residency primarily for purposes other than education must have been extant no less than 12 consecutive months and may include the following:

Consult the Time Schedule for additional fees related to specific courses.
1. Registration of motor vehicles, motor homes, travel trailers, boats or other personal property.
2. Driver’s license.
3. Employment records.
4. Income tax returns.
5. Voter registration.
6. Selective service registration.
7. Purchase of primary residence, lease agreement or monthly rental receipts.
8. Resident status of students in schools attended outside the state of Washington.
9. Membership in professional, business, civic or other organizations.
10. Records of checking or savings accounts and safety deposit box rental.

Once a student’s residency classification has been determined, that classification will remain unchanged in the absence of written evidence justifying change during the time the student is in continuous enrollment.

Applications for change in resident status and all supporting evidence must be submitted to the Office of Student Affairs no later than the 30th calendar day following the first day of instruction of the semester for which application is made. The burden of proof of resident status lies with the student.

Appeals of institutional determination of classification shall be subject to court review only under procedures described in Chapter RCW 28B.19. If erroneous, untrue, or incorrect information submitted on an application results in an improper classification of resident or nonresident status or a final determination is reversed through the appeals process, institutions shall recover from the student or refund to the student, as the case may be, an amount equal to the total difference in tuition and fees had proper classification been made.

In accordance with RCW 28B.15.014 certain nonresidents may be exempt from paying the nonresident tuition and fee differential. To be eligible for an exemption a nonresident student must provide documented evidence that the student resides in the state of Washington and (1) holds a graduate service appointment involving not less than 20 hours per week; (2) is employed by an academic department in support of instructional or research programs involving not less than 20 hours per week; (3) is a faculty member, classified staff member, or administratively exempt employee holding not less than a half-time appointment or the spouse or dependent child of such a person; (4) is active-duty military personnel for the first 12 months stationed in the state of Washington; or (5) is an immigrant having refugee classification from the U.S. Immigration and Naturalization Service or the spouse or dependent child of such refugee, if the refugee (a) is on parole status, or (b) has received an immigrant visa, or (c) has applied for United States citizenship. Exemption from nonresident tuition and fee differential shall apply only during the term(s) such person shall hold such classification, appointment, or be employed. To determine if you qualify for one or more of these exemptions, graduate students may apply at the Graduate School, French Administration Building, Room 324, and undergraduates may apply at the Office of Student Affairs, Lighty Student Services Building, Room 360.

### Refund Policy

Tuition, operating, and student services and activities fees will be refunded in full if the student officially withdraws from the university prior to the sixth day of class of the semester for which fees have been charged. If official withdrawal occurs after the fifth day of the semester, the following refund will apply:

<table>
<thead>
<tr>
<th>Week</th>
<th>Refund Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 2</td>
<td>80% refund</td>
</tr>
<tr>
<td>Week 3</td>
<td>80% refund</td>
</tr>
<tr>
<td>Week 4</td>
<td>70% refund</td>
</tr>
<tr>
<td>Week 5</td>
<td>60% refund</td>
</tr>
<tr>
<td>Week 6</td>
<td>60% refund</td>
</tr>
<tr>
<td>Week 7</td>
<td>50% refund</td>
</tr>
<tr>
<td>Week 8</td>
<td>50% refund</td>
</tr>
<tr>
<td>Week 9</td>
<td>40% refund</td>
</tr>
<tr>
<td>Week 10 and after</td>
<td>0% refund</td>
</tr>
</tbody>
</table>

Weeks during which the university is on vacation for the entire week do not count in this refund schedule.

For students disenrolled for nonpayment, only 60% of the charges for tuition, operating, and student service and activity fees will be cancelled. Thus, such students will be liable for the balance remaining.

If a student has the optional student medical insurance, the student must come to French Administration Building, Room 232, and cancel it or the student will be liable for the premium.

An administrative fee of the lesser of 5% of the assessed tuition and mandatory fees or $100 will be charged against the refund. Other amounts owed by students, for benefits or services received, will be deducted from the refunded fees.

For short courses and sessions of less than four weeks’ duration, the refund period is 24 hours after the official start of the session.
Agriculture and home economics expertise is vital to the well-being of the state and nation. The College of Agriculture and Home Economics is responsible for generating and disseminating knowledge about physical, biological, social, and economic aspects of agriculture, natural resources, and family. These responsibilities are met through formal classroom instruction, ongoing research programs, and outreach programs of cooperative extension. All of these contribute to the development of Washington’s human and natural resources.

The college’s 11 teaching departments offer 30 majors that prepare professionals for careers in food production, processing, and distribution and in areas of individual and family health and well-being. Students receive a solid base in science and a technological grounding that enables them to remain abreast of the dynamic fields of agriculture and home economics. Study programs also help prepare graduates to live and work in our environmentally conscious and globally focused economy and society.

Agriculture is one of the most important industries in the state of Washington. Although the number of individuals directly involved in production agriculture has declined, the overall agricultural industry offers an increasing number of job opportunities. Programs in agriculture prepare students for a wide variety of careers including food processing, pest management, natural resource management, business and finance, and sales and distribution of food products. Graduates are qualified to be agriculture teachers, media specialists, engineers, landscape architects, or other agricultural industry representatives. Students who earn graduate degrees are prepared to follow scientific careers in research, college teaching, cooperative extension, and highly technical pursuits in industry and government.

College programs in home economics prepare students for positions as dietitians, parent educators, consumer and family management consultants, and directors of aging programs. Students may wish to prepare for careers in apparel, merchandising, interior design, consumer services, commercial food service, community health, or journalism. Graduates are prepared to teach in public schools or community colleges, to work in adult education, and to administer and supervise preschool and child care centers. Those who earn master’s degrees are educationally qualified to fill positions in research, cooperative extension, governmental agencies, foreign service, college teaching, and business.

Admission

The requirements for admission to the College of Agriculture and Home Economics are the same as those for WSU. High school students planning to enroll in the college are urged to work closely with their counselors and with representatives from WSU in developing an appropriate background of high school courses in biological, physical, and social sciences, mathematics, and other elective areas.

Transfer Students

Most transfer students who have completed one year in another college or university ordinarily will have no difficulty in completing the requirements for one of the bachelor’s degrees in three additional years.

Some students who have completed two years before transferring may have some difficulty in completing requirements in two additional years because of required courses and course sequences. To avoid this difficulty, students enrolled in other colleges or universities but planning to transfer to the College of Agriculture and Home Economics at Washington State University should concentrate as much as possible on general education and departmental requirements normally scheduled during the freshman and sophomore years, with particular attention to those subjects required for the intended majors.

Requirements for Graduation

Requirements for graduation in the College of Agriculture and Home Economics vary according to the major and the degree to be granted as described in the departmental sections of this catalog. The student and the advisor jointly have the responsibility of selecting courses to fit the student’s native ability and professional interests consistent with departmental and general education requirements. Students are encouraged to do more than satisfy the minimum requirements.

Agriculture Degrees

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Agriculture</td>
<td>Biological Systems Engineering</td>
</tr>
<tr>
<td>Agricultural Communications</td>
<td></td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>Biological Systems Engineering</td>
</tr>
<tr>
<td>General Agriculture</td>
<td>Biological Systems Engineering</td>
</tr>
<tr>
<td>Integrated Pest Management</td>
<td>Entomology</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td></td>
</tr>
<tr>
<td>Agribusiness</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>(including agricultural production and resource management; and food and resource economics)</td>
<td></td>
</tr>
</tbody>
</table>
Bachelor of Science (continued)

Agricultural Technology and Management
Animal Sciences
Biological Systems Engineering
Crop Science (including technical, business and industry, science, and turf management)
Food Science and Human Nutrition
Genetics and Cell Biology
Horticulture (including fruit and vegetable production and ornamental horticulture)
Natural Resource Management
Forestry
Range
Wildlife
Wildland Recreation
Natural Resource Sciences
Wildlife
Plant Sciences
Soil Science (including environmental and soil management)

Bachelor of Landscape Architecture
Landscape Architecture
Horticulture and Landscape Architecture

Master of Arts
Agribusiness
Agricultural Economics

Master of Regional Planning
Regional Planning
Environmental Science and Regional Planning

Master of Science
Animal Sciences
Crop Science
Entomology
Food Science
Genetics and Cell Biology
Horticulture
Natural Resource Sciences
Natural Resources
Nutrition
Plant Pathology
Plant Physiology
Soil Science

Doctor of Philosophy
Agricultural Economics
Animal Sciences
Crop Science
Entomology
Food Science
Genetics and Cell Biology
Horticulture
Nutrition
Plant Pathology
Plant Physiology
Soil Science

Home Economics Degrees

Degree
Bachelor of Arts
Bachelor of Science
Master of Arts
Master of Science
Doctor of Philosophy

Department
Apparel, Merchandising, and Textiles
Human Development
Interior Design
Human Development
Interior Design
Human Nutrition
Food Science
Human Nutrition
Food Science and Human Nutrition
Nutrition

COLLEGE OF BUSINESS AND ECONOMICS

A. Gale Sullenberger, Dean

The programs of the College of Business and Economics provide instruction, research, and public service. These activities are guided by the Mission and Goals statement below:

Mission:
The mission of the College of Business and Economics is to educate students and to serve employers and the people of Washington in support of their business and economic interactions within the state, the nation, and across the world. Our college is committed to diversity as it relates to student body and faculty mix. We are part of a traditional land-grant university and, as such, have a fundamental commitment to continually improving the quality of our teaching, research, and service. We constantly strive to: (1) teach students skills essential to critical thinking, problem solving, communication, and leadership; (2) critically examine and extend existing knowledge; and (3) effectively disseminate state-of-the-art knowledge to students, colleagues, business, government, and the people of Washington. We also strongly encourage dynamic partnerships with business, government, and not-for-profit organizations.

Goals:
Teaching: To educate students so that they: understand the fundamental concepts within the various business and economics disciplines; are able to integrate those concepts to diagnose and solve multidisciplinary problems; are able to respond to those problems in an ethical manner; are able to lead and follow in diverse work teams; and, are able to communicate their ideas effectively.
Research: To examine critically, exiting knowledge. To create new knowledge through applied and basic research. To disseminate effectively, state-of-the-art knowledge on business and economics that is useful to our constituents.

Service: To carry out the teaching and research objectives in a manner that serves the needs of our constituents. To contribute effectively to the shared governance of Washington State University. To provide high quality professional service to internal and external constituents including: business, government, professional societies, student groups, and the academic community.

The curricula leading to degrees in business administration and accounting at both the undergraduate and graduate levels are accredited nationally by the American Assembly of Collegiate Schools of Business. Consistent with the mission and goals above, each business option below embraces a core of instruction that provides a common body of knowledge and advanced study.

Areas of Study
The college departments--accounting and business law; economics; finance, insurance and real estate; marketing; and management and systems--offer the following options for the Bachelor of Arts in Business Administration degree:

- **Accounting**
- **Business Economics**
- **Decision Sciences**
- **Entrepreneurship**
- **Finance**
- **General Business**
- **Human Resources/Personnel**

Within the college a specialized Bachelor of Arts degree is offered in the area of Hotel and Restaurant Administration.

The Department of Economics offers a Bachelor of Arts in Economics, with specializations in such areas as:

- **Economics of Financial Markets**
- **Economics of Public Policy**
- **Economics of Regulation, Industrial Organization, and Law**

Graduate work may be taken in business administration, economics, and accounting leading to Master and Doctor of Philosophy Degrees.

**Minors**
A minor in business administration is available to meet the demand for graduates with training in both business administration and one or more technical fields such as agriculture, chemistry, engineering, natural resources, journalism and psychology. A minor in Management Information Systems is offered for students wishing to combine MIS with another field in business or another college such as Liberal Arts, Sciences, or Engineering. A minor in Economics is also available and is complementary to majors such as business administration, engineering, history and prelaw.

**Admission**
Admission requirements to the programs of the College of Business and Economics vary. Interested students are advised to contact the departments or the college advising office for the latest requirements for major certification. Students may certify as business administration, economics, or hotel and restaurant administration majors only after earning a minimum of 30 semester hours, 6 of which must be in business or economics core courses, with a cumulative g.p.a. and business or economics g.p.a. which meet current standards determined by competitive ranking of students.

For exact information regarding the acceptability of college courses taken at other institutions in areas of study offered by the departments of the College of Business and Economics, prospective students should communicate with the appropriate department chair or the college advising office.

**Diversity, Recruitment, and Retention**
The college of Business and Economics is strongly committed to diversifying its student body as well as to improving its retention rates of underrepresented students. We in the college believe it is essential to create an environment that is supportive and inclusive and where all students can succeed academically and professionally.

Understanding the importance of recruitment and retention, the College of Business and Economics has initiated the CBE Recruitment and Retention Program. This program is committed to providing information and support for women and ethnic minority undergraduate and graduate students. The program has four components: (1) Networking; (2) Program and Organizational Development; (3) Internship Opportunities; and (4) Instructional Development.

**Degrees**
The curricula of the College of Business and Economics lead to the following degrees:

**Degrees: Pullman Campus**
- Bachelor of Arts
- Master of Accounting
- Master of Arts
- Master of Business Administration
- Doctor of Philosophy

**Degrees: Tri-Cities Campus**
- Bachelor of Arts
- Master of Business Administration

**Degrees: Vancouver Campus**
- Bachelor of Arts
- Master of Business Administration

**COLLEGE OF EDUCATION**
Bernard Oliver, Dean
The College of Education consists of the Departments of Educational Leadership and Counseling Psychology, Kinesiology and Leisure Studies, and Teaching and Learning.

The college has both degree and certification programs. The College of Education offers degree programs which prepare teachers for elementary school, secondary school, and college instruction; specialists in a variety of educational fields; administrators for schools, colleges, and universities; and sport and recreation specialists for private and community agencies. The college also provides professional training in kinesiology, recreation, athletic training, counseling, and counseling psychology. It offers a variety of educational services to local school systems.

At the baccalaureate level, the General Education Requirements provide a foundation for professional work in the College of Education through offerings in the arts and humanities and in the social and natural sciences. Practical experiences are integrated with course work throughout professional preparation curricula.

The mission of the certification programs in the College of Education is to furnish intensive preparation for persons who serve or aspire to serve in teaching, supervisory, special services, or administrative fields at all levels of education as well as in related areas of professional services. Candidates for certification must demonstrate knowledge and competencies at qualified levels of professional practice.

Graduate programs in the College of Education offer advanced course work and field experience in education and human services including specialists in exercise, human movement, and leisure services. Certification programs in administration and counseling are available at the graduate level. Doctoral programs focus on preparation of administrative personnel for the schools, counselors, teacher educators, and educational researchers. Graduate programs stress scholarship as a basis for all professional endeavors.

Teacher education curricula at all degree levels in the College of Education are accredited by the National Council for Accreditation of Teacher Education. The program in counseling psychology is accredited by the American Psycho-
logical Association. The College of Education is a member of the American Association of Colleges for Teacher Education and the University Council on Educational Administration.

The College of Education also functions as a service institution for schools and communities in the state of Washington. Applied research services are provided to education and health-related agencies throughout the United States and internationally. Services of faculty are available for consultant purposes, school studies, professional development programs, school seminars, and community conferences in the departmental specialties.

Degrees

The undergraduate degrees offered in the College of Education are as follows:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts in Education</td>
<td>Administration</td>
</tr>
<tr>
<td>Bachelor of Arts in Recreation and Leisure Studies</td>
<td>Counseling</td>
</tr>
<tr>
<td>Bachelor of Science in Kinesiology</td>
<td>Curriculum</td>
</tr>
<tr>
<td>The graduate degrees offered by the College of Education are:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Degree</th>
<th>Areas of Specialization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Education</td>
<td>Administration</td>
</tr>
<tr>
<td>Master of Arts in Recreation and Leisure Studies</td>
<td>Counseling</td>
</tr>
<tr>
<td>Master of Arts in Education</td>
<td>Curriculum</td>
</tr>
<tr>
<td>Master in Teaching</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>Master of Science in Kinesiology</td>
<td>Elementary Education</td>
</tr>
<tr>
<td>Doctor of Education</td>
<td>Literacy</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Recreational Leadership</td>
</tr>
<tr>
<td>(Education)</td>
<td>Exercise Science</td>
</tr>
<tr>
<td></td>
<td>Movement Studies</td>
</tr>
<tr>
<td></td>
<td>Educational Administration</td>
</tr>
<tr>
<td></td>
<td>Educational Psychology</td>
</tr>
<tr>
<td></td>
<td>Elementary Education</td>
</tr>
<tr>
<td></td>
<td>Literacy</td>
</tr>
</tbody>
</table>

COLLEGE OF ENGINEERING AND ARCHITECTURE

Robert A. Altenkirch, Dean

The College of Engineering and Architecture provides instruction, research, and public service in engineering, architecture, construction management, computer science, environmental science, and materials science. Academic units in the college offering engineering degree programs are chemical engineering, civil and environmental engineering, electrical engineering and computer science, and mechanical and materials engineering. The biological systems engineering degree is offered by the Department of Biological Systems Engineering, which is administratively housed in the College of Agriculture and Home Economics.

The School of Architecture offers degrees in architecture and construction management. Environmental science and regional planning degrees are available through the interdisciplinary Program in Environmental Science and Regional Planning. The PhD in Materials Science is offered through an interdisciplinary program as well.

The college's undergraduate degree programs prepare graduates for both professional careers and advanced study and are known for their practical, hands-on components coupled with a strong foundation of basic principles. The college's programs use formal classroom instruction, coupled with individual and group projects, seminars, and individually directed studies to prepare students to develop solutions that are technically, socially, and economically appropriate. Many students also gain work experience in their fields of interest through employment on college research projects or internships in industry.

Faculty, graduate students and staff in the college perform basic and applied research addressing problems of state, national, and international importance. Research projects are designed to enhance economically, ecologically and culturally sound use of our material resources and to promote well-balanced industrial and professional development. Research is an integral part of undergraduate degree programs, providing graduate project topics and opportunities for graduate student interactions with outside professionals. The college's research also strengthens its undergraduate programs by involving undergraduate students in relevant creative exploration and by keeping undergraduate course content current with the latest research developments.

The college provides important educational services to industries, professions, and the general public. Short courses, conferences, and workshops taught by college faculty produce valuable interactions among professionals and deliver current technical information to these audiences. Faculty of the college also serve as editors, authors, and reviewers for professional journals serving the nation and the world.

The college offers undergraduate degree programs of sufficient breadth to enable its graduates to choose employment from a large number of specialties within their general fields. Opportunities for specialization are made available to qualified students through graduate programs in the various schools and departments.

Students majoring in degrees offered by the College of Engineering and Architecture are guided in selection of courses in arts and humanities, social sciences, intercultural studies, and communication to develop a coherent plan for integrating general education requirements with needs of the major. Students are encouraged to take general education courses concurrently with courses in the major to facilitate effective integration of subjects for practical application. Students planning to transfer to Washington State University after completing general education requirements at other institutions should obtain sample schedules of studies for their proposed major at WSU to be familiar with specific requirements for that major. Transfers into engineering programs should include a transferable course in economics as part of their general education course work. Engineering majors generally require additional advanced social science or arts and humanities course work beyond the community college level.

Degrees

Degrees offered in the College of Engineering and Architecture are listed below:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Architecture</td>
<td>Architecture</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Architectural Studies</td>
</tr>
<tr>
<td>Bachelor of Science Management</td>
<td>Biological Systems Engineering</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Chemical Engineering</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Computer Science</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Construction Management</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Electrical Engineering</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Environmental Science/Regional Planning (Interdisciplinary Program)</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Materials Science and Engineering</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Engineering Management</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>(Spokane, Tri-Cities, Vancouver)</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Architecture</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Chemical Engineering</td>
</tr>
</tbody>
</table>

Master of Engineering Management

Master of Science
Master of Science

(continued)

Civil Engineering
Computer Science
Electrical Engineering
Engineering
Environmental Engineering
Materials Science and Engineering
Mechanical Engineering
Chemical Engineering

Doctor of Philosophy

Civil Engineering
Computer Science
Electrical and Computer Engineering
Engineering
Engineering Science
Materials Science
(Interdisciplinary Program)
Mechanical Engineering

Engineering

Engineering practice is based on sound fundamental and practical knowledge of mathematics, the sciences, and liberal arts. Basic sciences and mathematics form the foundation on which engineering science and engineering design courses are built. Engineering courses prepare students to solve problems in society by quantitatively analyzing alternatives and making decisions guided by economics and an awareness of social and ethical issues.

The existing undergraduate engineering programs offered by the college are accredited by the Accreditation Board for Engineering and Technology (ABET). Students desiring a specialization in computer engineering may follow a curriculum for that specialization as an option under the Bachelor of Science in Electrical Engineering degree.

Graduate degrees in engineering, listed previously, are offered at the master’s and doctoral levels. Students desiring graduate degrees in areas not listed may arrange with the program of interest to pursue a Master of Science in Engineering or Doctor of Philosophy in Engineering Science, allowing their programs of study to be designed for their particular needs and interests. Admission to engineering graduate programs is open to qualified students with a recognized degree in engineering, mathematics, a physical science, or a biological science. Additional information about specific areas of active research may be obtained by contacting the Associate Dean for Research or the appropriate department chair or school director.

Strong supporting courses are available from the Departments of Mathematics, Physics, Chemistry, and the Program in Biology. The graduate programs are also supported by many excellent university facilities such as the Water Research Center, Albrook Hydraulics Laboratory, Laboratory for Atmospheric Research, Wood Materials and Engineering Laboratory, Information Technology, Spectrographic Laboratory, the Electron Microscopy Center, Erosion Research and Outdoor Irrigation Laboratories, Food Engineering Pilot Plant, the National Science Foundation Center for Design of Analog/Digital Integrated Circuits, and the Materials Research Center.

Computer Science

Computer science has its principal bases in the engineering sciences and mathematics. Computer science encompasses the theory and techniques by which information is encoded, stored, communicated, transformed, and analyzed. It deals particularly with the theory of algorithms, the step-by-step procedures for solving a problem or accomplishing some goal. Students study computer software and hardware systems for efficient solution of practical problems. The undergraduate Program in Computer Science, offered through the School of Electrical Engineering and Computer Science, is accredited by the Computing Sciences Accreditation Board (CSAB). Curricular specializations available include artificial intelligence, communications, computer engineering, computer graphics, mathematics, management information systems, robotics and control, scientific computation, and software engineering. Students use WSU’s central computers and a variety of scientific workstations, graphic workstations, and microcomputer laboratories, all of which are networked to each other and to national networks.

Architecture and Construction Management

The School of Architecture offers programs of study in architecture and construction management. Practice in these fields relies on studies of the arts and humanities as well as the sciences and technologies. Courses are designed to provide both professional fields with the breadth and depth of knowledge necessary to respond to the environmental and cultural forces that continually shape the decision-making processes associated with each field.

Programs of study in the school as outlined in the different curricula lead to the following degrees: Bachelor of Science in Architectural Studies (a four-year degree program); Bachelor of Science in Construction Management (a five-year professional degree program) accredited by the American Council for Construction Education (ACCE); Bachelor of Architecture (a five-year professional degree program) accredited by the National Architectural Accreditation Board (NAAB); and Master of Science in Architecture with emphasis on energy and resource management.

Admission

Students must apply and be accepted (certified) into the undergraduate programs in the college before they may enroll in 300-400-level courses in the major. When admitted to Washington State University, students are placed into the advising program within the Student Advising and Learning Center (SALC) where they are assigned advisors in their indicated major interest for the period prior to their being certified in a major. Students may certify into a major after they have completed 24 semester credit hours and a prerequisite set of courses for the specific major.

Prospective students in engineering or computer science may apply for certification into the major of their choice upon completion of the applicable program requirements. Prospective students should contact the department or school administering their choice of majors to determine specific courses to be completed, application procedures, and application deadlines for certification. Factors considered in certification decisions include grades in science and math courses, grades in the major, overall grade point average, course repeats, professional experience and goals, and other indicators of the student’s potential for successful completion of the curriculum. Students denied certification into an engineering program may appeal to the Dean, College of Engineering and Architecture, for a review to ensure that departmental procedures were followed.

Prospective students in architecture are assigned to an architecture advisor in the SALC and go through a step-by-step screening process scheduled at the end of the first and second years of their studies.

Prospective students in construction management are assigned to a construction management advisor in the SALC and go through a step-by-step screening process scheduled at the end of their second year of studies.

THE GRADUATE SCHOOL

Robert V. Smith, Dean

A graduate school has been described as a select community of scholars, faculty, and students dedicated to the extension of scholarship and the advancement of knowledge for the ultimate common good of mankind. The fields of intellectual and scholarly activity are numerous, and the student who contemplates graduate study should select a graduate school that offers a superior program in the chosen field. The student should study the accomplishments of the members of the graduate faculty, the adequacy of the research facilities, and the appropriateness of the curriculum. For many, the Graduate School of Washington State University will provide advantageous and attractive opportunities.

Prospective graduate students should prepare themselves adequately, both in the fundamental subject matter necessary for their advanced work and in the other branches of learning, so that they may intelligently fulfill their responsibilities of leadership and service to society.

In a graduate program, a student is required to complete appropriate advanced courses, to participate in seminars, and to make an original contribution to knowledge. At least one academic year of graduate study, or the equivalent, is necessary for the completion of a program leading to a master’s degree. A doctor’s degree is awarded in recognition of distinctive scholarship.

The period of study for the Doctor of Philosophy degree is at least three years (six semesters) beyond the baccalaureate degree. At least two of these three years shall be in residence at Washington State University, including a minimum of four semesters, two of which must be continuous, when the student is enrolled full-time and present on the Pullman campus. Full-time enrollment for three summer sessions may be substituted for two academic year semesters. Summer session cannot be substituted for the two continuous semester requirements for the doctoral degree. The period of study for the Doctor of Education degree is at least three years (six semesters) beyond the baccalaureate degree. At least two of these three years shall be in residence at Washington State University, including a minimum of four semesters, with at least one summer session and one
Admission

Graduates of Washington State University and other colleges and universities whose degrees are recognized by this institution and who meet the requirements for admission to the Graduate School may be admitted to the Graduate School. For necessary interpretations, inquiries should be directed to the Dean of the Graduate School. Prospective graduate students who have established superior academic records and whose degree interests are compatible with the programs offered at Washington State University are invited to apply for admission to the Graduate School.

Students who contemplate entering the Graduate School should obtain application forms from the Office of the Graduate School. For admission to the Graduate School, Washington State University requires official transcripts from each of the following: (1) colleges or universities from which any degrees have been granted or are expected and those transcripts which show the last 60 graded semester or 90 graded quarter hours of undergraduate work taken; (2) colleges or universities showing graded graduate-level (including doctoral) course work taken after the bachelor's degree. Note: Students intending to request transfer credit for their Program of Study will need to submit original transcripts from colleges or universities showing such credit. Departments and programs are free to request additional transcripts as deemed appropriate. Official transcripts are those mailed directly to the Graduate School from the registrar of the institution attended. One set is to be sent to the Graduate School and a second set is to be sent to the chair of the department or program concerned. Complete credentials should be on file at least one month before registration. Transcripts from other institutions cannot be returned. Records of previous work at Washington State University need not be submitted.

In general, admission to the Graduate School on regular student status requires at least a B (3.00 on a 4.00 scale) average for the last 60 semester hours of graded undergraduate work. Admission is to be on the basis of graduate study elsewhere, when it has been accomplished in a recognized graduate school with at least a B (3.00) average in 12 or more semester hours of graded graduate work beyond the bachelor's degree. Provisional admission may be granted to those students recommended by a department whose average is below 3.00, provided their total record indicates a high probability of success.

Admission of a student from a foreign university may be approved by the Dean of the Graduate School if the student presents a superior academic record, furnishes satisfactory evidence of adequate ability in English, and has sufficient financial resources. Such applications should be completed at least six months in advance of the proposed date of enrollment in the Graduate School. Foreign students who have undertaken graduate study in other institutions will be accepted only after evaluation of their undergraduate records, as well as their performance in graduate study, and the minimum criteria, as described above, will apply.

Because of limitations within certain departments, it may be necessary to deny admission to some qualified applicants. Students who come to Washington State University before receiving the admission certificate do so at their own risk. For further details the Graduate Study Bulletin should be consulted.

Transfer of Graduate Credits

Appropriate credits (with a grade of B or higher) earned in other accredited graduate schools may be applied to a limited extent toward an advanced degree; however, they may not be substituted for residence requirements. Use of WSU credit earned prior to formal admission to the Graduate School is restricted. For necessary interpretations, inquiries should be sent to the Dean of the Graduate School.

Summer Sessions

Credit earned during summer sessions of Washington State University may be applied in the same manner and subject to the same rules and regulations as credit earned during fall and spring semesters. In a number of departments there are unusually good opportunities for research during the summer months. Summer work in the College of Education is planned especially to meet the needs of teachers and administrators.

Graduate Work Through Continuing Education

Credit earned in graduate-level courses taken through the WSU Office of Extended University Services will be accepted on graduate student programs without limit, subject only to customary admission and program approvals.
No extension credits from other institutions, or work done by correspondence with this or any other institution, or credit earned by special examination may be used to meet advanced degree requirements.

Graduate Study by Seniors
Seniors who have at least a 3.00 grade point average in the last 60 hours of their undergraduate work at Washington State University may register for up to 6 semester hours of work in the Graduate School in excess of the number of hours required to complete the bachelor’s degree. Graduate School approval is required at the time of registration. Only grades of B or higher may be applied toward an advanced degree. Work done by an undergraduate under other conditions may not be applied toward an advanced degree.

Seniors who wish to enroll in 500-level courses for undergraduate credit must obtain approval of the major advisor and the chair of the department or program in which the course is offered.

Registration
All graduate students must maintain continuous enrollment in the Graduate School, registering for each semester and summer session from the time of first enrollment until all requirements for the degree are completed. Continuous enrollment may be maintained by registering in one of the following categories: 1) full-time enrollment; 2) part-time enrollment; 3) graduate leave status enrollment.

Students on graduate leave status may discontinue enrollment for credit for a period of 12 months without penalty. After that time, graduate leave status students will be assessed a fee of $25. Students on graduate leave status will be considered by the Graduate School to be in good standing for up to four consecutive years. Graduate leave status enrollees who wish to enroll for credit must give the Graduate School one month notice prior to the enrollment date. Graduate students who fail to maintain continuous enrollment will be dropped from the university.

Special Projects or Independent Study (600), Master’s Research, Thesis, and/or Examination (700), Master’s Special Problems, Directed Study, and/or Examination (702), and Doctoral Research, Dissertation, and/or Examination (800) shall have as prerequisite regular or provisional status in the Graduate School.

Registration Policy for Graduate Students Completing Degree Requirements
Graduate students must register for the required amount of 700, 702, or 800 credits during the semester or summer session in which they take their final examinations. Fall and spring semesters and summer session officially end at the time final grades are due in the Registrar’s Office. Examinations are not normally scheduled between regular terms. However, students who have received special permission from the Graduate School to schedule final master’s or doctoral oral examinations in the interim nonclass period after the end of a term will be required to register for the following semester or summer session.

Scholarship Standards
A student must earn a 3.00 grade points average for all course work (including all courses listed on the program and other graduate upper- and lower-division courses). No work of C grade or less may be dropped from a program, nor can a course be repeated for a higher grade if the final grade is C or higher. Any course listed on the program in which a grade of C-, D, or F is earned must be repeated.

Any graduate student who fails to maintain a cumulative grade point average of 3.00 or higher for all course work subsequent to admission to the Graduate School will be dropped from the university. A student who is dropped may be permitted to re-enroll if a special recommendation is made by the chair of the major department with the concurrence of the Dean of the Graduate School.

Requirements for a Graduate Degree
The graduation requirements of the Graduate School as published in the Graduate School Policies and Procedures Manual in effect at the time of the student’s initial admission as a regular or provisional graduate student are those which must be met for completion of a graduate degree program. Departmental requirements for graduation are those in effect at the time the student files a program. Subsequent changes in degree requirements of the Graduate School or in departmental requirements may be substituted at the option of the student upon approval by the master’s or doctoral committee, by the department chair, and by the Dean of the Graduate School.

If a student is dropped from the university for failure to maintain continuous enrollment, the graduation requirements of the Graduate School are those in effect at the time of readmission to the Graduate School.

Time Limit
The time limit for the use of graduate credits toward a master’s degree is six years from the beginning date of the earliest course applied toward the degree. Each program for a doctor’s degree is considered individually. In all cases, work for the degree must be completed within three years of the date of satisfactory completion of the preliminary examination. At least four months must elapse between preliminary and final examinations for doctoral degrees.

Assistantships, Fellowships, and Scholarships
Teaching and research assistantships are available in most departments offering advanced degrees, and research fellowships are granted in some departments. For the student personnel program, staff assistants are appointed each year. The Graduate Study Bulletin and Graduate School Policies and Procedures should be consulted concerning qualifications, eligibility, and application procedures. Assistantship appointments require part-time service. Students on appointment must maintain regular enrollment in Graduate School for the duration of their appointments. Stipends vary according to the amount of required service, the extent of the student’s training, and other factors. Graduate students appointed to assistantships of half-time service or more by the Board of Regents and who reside in the state of Washington while attending WSU may receive waivers of the resident operating fees and the nonresident portion of the tuition. Forms for assistantship or fellowship applications are included as part of the general application for admission to Graduate School.

As most appointments are made by April 1, it is desirable to have applications completed by March 15.

Washington State University subscribes to the following resolution of the Council of Graduate Schools in the United States regarding scholars, fellows, trainees, and graduate assistants. “Acceptance of an offer of financial support (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by a prospective or enrolled graduate student completes an agreement that both student and graduate school expect to honor. In that context, conditions affecting such offers and their acceptance must be defined carefully and understood by all parties.

Students are under no obligation to respond to offers of financial support prior to April 15; earlier deadlines for acceptance of such offers violate the intent of this Resolution. In those instances in which a student accepts an offer before April 15, and subsequently desires to withdraw that acceptance, the student may submit in writing a resignation of the appointment at any time through April 15. However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first obtaining a written release from the institution to which a commitment has been made. Similarly, an offer by an institution after April 15 is conditional on presentation by the student of the written release from any previously accepted offer. It is further agreed by the institutions and organization subscribing to the above Resolution that a copy of this Resolution should accompany every scholarship, fellowship, traineeship, and assistantship offer."

For information about special scholarships and fellowships write to the Dean of the Graduate School or the chair of the department concerned.

COLLEGE OF LIBERAL ARTS
John Pierce, Dean
As a bearer of the tradition of liberal education, the College of Liberal Arts places much importance upon soundly conceived and well taught courses developed to give a properly balanced presentation of the basic areas of human endeavor. Students are assured a nucleus of courses in humanities, social sciences, biological sciences, and physical sciences, a knowledge of at least one foreign language, and a concentration of subject matter in the major and minor fields. As the interests of students develop, students are encouraged to supplement their programs with elective courses of special cultural values such as those in art, literature, and music.

The College of Liberal Arts offers a number of programs that prepare students for various professions and vocations. Graduate as well as undergraduate work is offered by most departments.
The college has the responsibility to provide course work in the arts, humanities, and social sciences for students who major in the other colleges at WSU. In this respect, an important service function is fulfilled.

A number of curricula are offered to give preprofessional training to students who will then enter professional schools. At the same time these curricula are designed to provide a basic liberal education.

Washington State University’s graduate training program in clinical psychology is accredited by the American Psychological Association. The speech-language-pathology and audiology programs are accredited by the State Board of Education and the American Speech-Language-Hearing Association, Educational Standards Board. The Music Program is a full member of the National Associate of Schools of Music.

The college, in cooperation with the Department of Teaching and Learning prepares teachers for all levels of educational work. Students preparing for teaching at the elementary, secondary, and college levels usually have the course work in their chosen subject-matter field within the College of Liberal Arts. The specific requirements for certification and teaching majors and minors are listed under the Department of Teaching and Learning.

Admission

The requirements for admission to the College of Liberal Arts are the same as those for Washington State University. High school students should include the following subjects as preparation for work in the college: at least four years of English, at least two years of one foreign language, three years of mathematics, two years of science, and three years of social sciences; participation in music, art, speech, and communication is also recommended.

Requirements for Graduation

The requirements for graduation include the university requirements for graduation plus additional College of Liberal Arts requirements in the humanities, social sciences, and sciences. See graduation requirements on page 39 and 40 of the catalog.

Departmental units include anthropology, communication, comparative American cultures, English, fine arts, foreign languages and literatures, history, philosophy, political science, psychology, sociology, speech and hearing sciences, music and theatre arts and drama. In addition, several special curricula are offered and are listed alphabetically in this catalog as follows: alcohol studies, American studies, Asia program, Canadian area studies, general studies (classics, humanities, liberal arts, linguistics, religious studies, social science), Latin American studies, Russian area studies, Scandinavian area studies, social studies, social work, and women studies.

The Prelaw Advising Center is located in the Department of Political Science. Other prelaw curricula are offered through such departments and programs as English, history and philosophy.

Degrees

The College of Liberal Arts offers programs of study leading to the following degrees:

Degree

Bachelor of Arts

Department or Area

American Studies
Anthropology
Asian Studies
Communication
Comparative American Cultures
Criminal Justice
English
Fine Arts
Foreign Languages and Literatures
General Studies
humanities
social sciences
History
Liberal Arts
Music
Philosophy
Political Science
Social Studies
Sociology

Bachelor of Fine Arts

American Studies
Art
Communication
Creative Writing
Dance
Film
Film and Video Production
Fine Arts
Film Studies
Music
Music Performance
Music Production
Music Technology
Theatre
Theatre Arts and Drama

Bachelor of Music

American Studies
Art
Communication
Creative Writing
Dance
Film
Film and Video Production
Fine Arts
Film Studies
Music
Music Performance
Music Production
Music Technology
Theatre
Theatre Arts and Drama

Master of Arts in the Teaching of

Master of Fine Arts

American Studies
Art
Communication
Creative Writing
Dance
Film
Film and Video Production
Fine Arts
Film Studies
Music
Music Performance
Music Production
Music Technology
Theatre
Theatre Arts and Drama

Master of Philosophy

American Studies
Art
Communication
Creative Writing
Dance
Film
Film and Video Production
Fine Arts
Film Studies
Music
Music Performance
Music Production
Music Technology
Theatre
Theatre Arts and Drama

INTERCOLLEGIATE CENTER FOR
NURSING EDUCATION

Thelma L. Cleveland, Dean

The Intercollegiate Center for Nursing Education (ICNE) in Spokane is a college of nursing shared in common by three institutions of higher education: Eastern Washington University, Washington State University, and Whitworth College.

Instructional programs are conducted at the baccalaureate and master’s degree levels to develop responsible citizens and to provide the professional knowledge, skills, and values essential to the practice of nursing within the state and in the larger society. The undergraduate curriculum includes both liberal arts education and preparation as a generalist in the practice of nursing. The curriculum at the graduate level provides preparation for advanced and specialized practice.

Undergraduate Program

ICNE’s undergraduate program is approved by the Washington State Nursing Quality Assurance Commission and is accredited by the National League for Nursing. Approximately 300 generic and registered nurse students are enrolled in the baccalaureate nursing program at Spokane, the outreach site in Yakima, the Wenatchee site, and the branch campuses in Tri-Cities and Vancouver.

The program is open to students beginning a nursing career and registered nurses who wish to obtain a baccalaureate degree in nursing. Graduates practice in a variety of settings including hospitals, community health agencies, nursing homes, occupational health programs, home health care and community mental health centers.

The curriculum, for students initiating the study of nursing, consists of lower- and 300–400-level components and is four academic years in length. The first two years of the curriculum (lower-division component) are completed on the Pullman campus or may be taken at any institution offering courses equivalent to those taught at Washington State University.

The last two years of the professional curriculum (300–400-level component) are provided at the Intercollegiate Center for Nursing Education in Spokane, the outreach site in Yakima, the Wenatchee site, and the branch campuses in Tri-Cities and Vancouver.

Admission

All students planning to major in nursing must apply to the Office of Admissions at WSU and be admitted to the university. Requirements may be met
at WSU or may be transfer credits from another institution of higher education. Applications to the 300-400-level nursing major in Spokane and Yakima are obtained from the Office of Admissions at WSU. Application must be completed by February 15 for fall admission and September 15 for spring admission.

All registered nurses planning to apply to the nursing major at WSU Tri-Cities, (which includes the Wenatchee site), or WSU Vancouver must do so through the Admissions Office at the respective sites. Applications are available until February 15 for fall semester consideration. Students are encouraged to contact an advisor at their respective campus for lower-division advising.

Registered nurse applicants must be graduates of an approved community college or hospital school of nursing and be currently licensed or eligible for licensure to practice in the state of Washington at the time of application. Admission to the 300-400-level nursing major is based upon evaluation of the student’s entire application. Applicants for admission to the center must present at least 60 semester hours or 90 quarter hours of acceptable credit from an accredited college or university. The credits must include those courses which are prerequisite to nursing.

Since the number of applicants to the ICNE may exceed the number that can be admitted, there is no assurance that all persons meeting the admission criteria will be selected.

Graduate Program
Established in 1983 the Master of Nursing program prepares nurses for leadership in acute care nursing, psychiatric/mental health nursing, community health nursing, and family nurse practitioner positions. The program is accredited by the National League for Nursing. Degree requirements (except the family nurse practitioner program) can be completed in three semesters of full-time study. However, four semesters are required for the family nurse practitioner curriculum. Individualized programs can be arranged to facilitate part-time study. Applications must be complete by March 15 for fall admission and by November 15 for spring admission.

Continuing Education Program
The Continuing Education Program provides a variety of offerings for registered nurses throughout the Inland Northwest and southwest Washington. In addition to workshops, conferences, seminars, and courses conducted at more than 11 sites, televised courses are aired over cable and public television systems. Home study courses are also available. The continuing education needs and interests of nurses are assessed through a variety of means.

Degrees
The degrees offered through the Intercollegiate Center for Nursing Education are as follows:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in</td>
<td>Generalized practice of professional</td>
</tr>
<tr>
<td>Nursing</td>
<td>nursing</td>
</tr>
<tr>
<td>Master of Nursing</td>
<td>Acute care nursing</td>
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<tr>
<td></td>
<td>Community health nursing</td>
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<tr>
<td></td>
<td>Family nurse practitioner</td>
</tr>
<tr>
<td></td>
<td>Psychiatric/mental health nursing</td>
</tr>
</tbody>
</table>

COLLEGE OF PHARMACY

Mahmoud M. Abdel-Monem, Dean

Admission
The schedule of studies in pharmacy at Washington State University is divided into two prepharmacy or preprofessional years and four professional years.

The two preprofessional years of study may be taken at WSU or any accredited college or university having equivalent courses. Not less than 60 semester credit hours or 90 quarter hours should be completed during the two preprofessional years. All General Education Requirements and prepharmacy science courses listed below must be completed prior to the beginning of all classes in the professional program.

<table>
<thead>
<tr>
<th>WSU Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Humanities and Social</td>
<td></td>
</tr>
<tr>
<td>Sciences Electives</td>
<td>9</td>
</tr>
<tr>
<td>BC/BP 364</td>
<td></td>
</tr>
<tr>
<td>Introductory</td>
<td>4</td>
</tr>
<tr>
<td>Bio S 103, 104</td>
<td></td>
</tr>
<tr>
<td>Introductory (with lab)</td>
<td>8</td>
</tr>
<tr>
<td>Chem 105, 106</td>
<td></td>
</tr>
<tr>
<td>Principles (with lab)</td>
<td>8</td>
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<tr>
<td>Chem 340, 341, 342</td>
<td></td>
</tr>
<tr>
<td>Organic (with lab)</td>
<td>8</td>
</tr>
<tr>
<td>Engl 101</td>
<td></td>
</tr>
<tr>
<td>Introductory Writing</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110, 111</td>
<td></td>
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<tr>
<td>World Civilizations</td>
<td>6</td>
</tr>
<tr>
<td>Intercultural Studies Elective</td>
<td>3</td>
</tr>
<tr>
<td>Math 140</td>
<td></td>
</tr>
<tr>
<td>Math for Life Scientists</td>
<td>4</td>
</tr>
<tr>
<td>Micro 301</td>
<td></td>
</tr>
<tr>
<td>General (with lab)</td>
<td>4</td>
</tr>
<tr>
<td>SpCom 102</td>
<td></td>
</tr>
<tr>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>Stat 412</td>
<td></td>
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<tr>
<td>Biometry</td>
<td>3</td>
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<tr>
<td>First Aid and CPR certification</td>
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<tr>
<td>and demonstration of computer</td>
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<tr>
<td>literacy.</td>
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</table>

Students entering WSU as freshmen with an intent to major in pharmacy are advised to indicate this fact when enrolling. Prepharmacy students are advised and counseled by members of the pharmacy faculty.

The application period each year is from December 1 to March 1. Students who wish to make special inquiries about the College of Pharmacy should contact Pharmacy Student Services, WSU, Pullman, WA 99164-6510, (509) 335-1402.

Determination of admission to the College of Pharmacy will be based upon the student’s academic record, communication skills, recommendations, professional goals statement and, if necessary, a personal interview. The race, sex, religion, age, color, creed, national or ethnic origin, marital status and handicap of the applicant is not considered in the admission process. Because the number of applicants to the professional program exceeds the number that can be admitted, no assurance can be given that those who successfully complete the prepharmacy program will be admitted to the college.

Degrees
The College of Pharmacy offers programs of study leading to the degree of Doctor of Pharmacy (PharD) and the Master of Science in Pharmacology and Toxicology and Doctor of Philosophy (Pharmacology and Toxicology).

COLLEGE OF SCIENCES

Leon J. Radziemski, Dean

Faculty and curricula within the College of Sciences provide a sound and challenging education for students in disciplines covering the life sciences, physical sciences, environmental science, and mathematics. Both undergraduate and graduate degree programs within the college include classroom instruction, seminars, special projects and research which together provide first-rate training to meet the demands of our international technological society.

Undergraduate students planning to pursue advanced work in graduate or professional schools are advised to plan curricula to meet admission requirements for the advanced study.

One of the major service functions of the college is to provide course work in the sciences and mathematics for students majoring in other disciplines.

Many of the college’s faculty have attained national and international reputations and have received numerous honors and awards. These include state and national teaching awards, Guggenheim Fellowships, Fulbright Scholarships, national career development awards, National Institutes of Health Merit Awards, and an Eli Lilly Award. Faculty frequently serve on national review panels of granting agencies for instructional and research support and on editorial boards of international journals.

Many undergraduate majors conduct a senior research project under supervision of a faculty member. This hands-on introduction to the scientific method is facilitated by the high quality of the teaching and research laboratories, computer facilities, and other infrastructure within the college. The Electron Microscopy Center, Nuclear Magnetic Resonance Center, Shock Dynamics Laboratory, Geoanalytical Laboratory, Ownby Herbarium, Conover Zoological Museum, Hudson Biological Reserve, and Meyer’s Point Biological Study Site are all facilities within the college. A strong technical services unit provides instrument shops, electronics construction and repair, graphics, and glassblowing. The college shares support and use of several university-wide facilities such as the Laboratories for Bioanalysis.
Degrees

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
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<tbody>
<tr>
<td>Bachelor of Science</td>
<td>Biochemistry</td>
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<tr>
<td></td>
<td>Biology</td>
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<tr>
<td></td>
<td>Chemistry</td>
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<tr>
<td></td>
<td>Environmental Science</td>
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<td></td>
<td>General Studies</td>
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<td></td>
<td>biological sciences</td>
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<td></td>
<td>mathematics</td>
</tr>
<tr>
<td></td>
<td>physical sciences</td>
</tr>
<tr>
<td>Master of Arts</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Master of Science</td>
<td>Biochemistry</td>
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<tr>
<td></td>
<td>Biology</td>
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<td></td>
<td>Botany</td>
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<tr>
<td></td>
<td>Chemistry</td>
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<tr>
<td></td>
<td>Environmental Science</td>
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<tr>
<td></td>
<td>Genetics and Cell Biology</td>
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<tr>
<td></td>
<td>Geological Engineering</td>
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<tr>
<td></td>
<td>Geology</td>
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<tr>
<td></td>
<td>Mathematics</td>
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<tr>
<td></td>
<td>Microbiology</td>
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<tr>
<td></td>
<td>Physics</td>
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<td></td>
<td>Zoology</td>
</tr>
<tr>
<td>Master of Regional Planning</td>
<td>Regional Planning</td>
</tr>
<tr>
<td>Doctor of Arts</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Biochemistry</td>
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<tr>
<td></td>
<td>Botany</td>
</tr>
<tr>
<td></td>
<td>Chemistry</td>
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<tr>
<td></td>
<td>Genetics and Cell Biology</td>
</tr>
<tr>
<td></td>
<td>Environmental and Natural Resource Sciences</td>
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<tr>
<td></td>
<td>Geology</td>
</tr>
</tbody>
</table>

Doctor of Philosophy (continued)

Materials Science
Mathematics
Microbiology
Physics
Plant Physiology
Zoology

Some of the graduate degree programs are jointly supported by the Colleges of Agriculture and Home Economics, of Engineering and Architecture, and of Veterinary Medicine, thus providing a broad base for graduate training.

COLLEGE OF VETERINARY MEDICINE

Borje K. Gustafsson, Dean

The curriculum of the College of Veterinary Medicine prepares students for positions in the many fields of veterinary medicine, e.g., private practice, US Public Health Service, federal and state disease regulatory programs, industry, teaching, research, and military medicine. Areas studied include animal health, disease eradication, comparative pharmacology and toxicology, environmental sciences, laboratory animal medicine, and comparative biomedical studies to help resolve human disease problems.

The professional degree, Doctor of Veterinary Medicine, is recognized by all state and territorial licensing boards, as well as those in foreign countries.

The College of Veterinary Medicine is accredited by the American Veterinary Medical Association.

Admission

A minimum of six years is required to obtain the degree of Doctor of Veterinary Medicine. The first two years of pre-veterinary training can be taken at any institution having courses equivalent to those taught at Washington State University, and the last four years are professional study directed by the College of Veterinary Medicine.

Applicants for admission to the College of Veterinary Medicine must present at least 60 semester hours of acceptable credits from an accredited college or university exclusive of military training and physical education. The 60 semester hours should include: 3 or 6 hours of social science and 3 or 6 hours of arts and humanities, to total 9 hours; 6 hours communication proficiency; 3 hours intercultural studies; 3 hours world civilizations; 3 hours mathematics proficiency (General Education Requirements for Graduation); 33 hours including zoology or general biology, inorganic and organic chemistry, biochemistry, physics, mathematics, genetics; and electives. All courses except biochemistry can be taken at a community college.

Information regarding the acceptability of course credits should be obtained from the Director of Admissions.

Courses designed to fit these requirements are offered by Washington State, and the number of students admitted to preprofessional work is not limited. Since the number of applicants for admission to the professional course exceeds the number that can be admitted, no assurance can be given that all applicants who successfully complete the preprofessional curriculum will be admitted. WSU does not grant a BS in pre-veterinary medicine. Students taking pre-veterinary course work may declare a major in any subject, but are encouraged to major in animal science, biology, chemistry, microbiology, wildlife, or zoology.

A major in veterinary medicine is not declared until admission to the College of Veterinary Medicine has been granted.

A student seeking to enter the four-year program must fill out a VMCAS (veterinary medical college application service) application. VMCAS applications can be obtained from the Office of Student Services, College of Veterinary Medicine, Pullman, WA 99164-7012 and must be completed and returned to the VMCAS office by October 1 of the year preceding the fall semester in which the applicant wishes to enroll. Records of all applicants will be forwarded by VMCAS to the Washington Oregon Idaho (WOI) Admissions committee. The committee, with the approval of the Board of Regents, selects those students to be admitted to the first year of the professional program. Applicants will be notified of their acceptance or denial on or before March 15. Successful applicants who are not currently enrolled at WSU will be asked to fill out a uniform undergraduate application for admission to WSU. Unsatisfactory students who wish to be considered the next year must present new applications.
In accordance with policies adopted by the Board of Regents, preference for admission to the College of Veterinary Medicine is as follows:

1. To qualified students coming from homes in the states of Washington, Idaho, and Oregon.
2. To qualified students certified and financed by the Western Interstate Commission for Higher Education (WICHE) Compact states.
3. To all other qualified students.

Western Regional Higher Education Compact
The College of Veterinary Medicine at Washington State University has entered into a regional educational program with the states of Alaska, Arizona, Hawaii, Montana, New Mexico, Nevada, North Dakota, Utah and Wyoming. Under the terms of this compact, a certified student admitted from one of these states is sponsored financially by the home state and is subject to the same fees as Washington resident students.

Students must apply to their home state for certification in addition to making application to the College of Veterinary Medicine, Washington State University. Additional information regarding regional veterinary education may be obtained from the following:

The Executive Director
Western Interstate Commission for Higher Education
P.O. Drawer P
Boulder, CO 80302

WOI Regional Program in Veterinary Medical Education
Washington State University has agreed to engage in a regional program in veterinary medicine with the University of Idaho and Oregon State University. The regional program involves instruction on the WSU campus, at the Caine Center (Idaho), and on the Oregon State University campus. Specific quotas of students from Idaho and Oregon have been established under the terms of this agreement.

Degrees
The College of Veterinary Medicine offers courses of study leading to the degrees of Doctor of Veterinary Medicine, Bachelor of Science in Veterinary Science, Master of Science in Veterinary Science, Master of Science in Neuroscience, and Doctor of Philosophy (Neuroscience and Veterinary Science).
Branch Campuses

WASHINGTON STATE UNIVERSITY AT SPOKANE

William H. Gray, Campus Executive Officer and Dean

Washington State University at Spokane is a full-service urban campus and a primary provider of graduate and research programs for Spokane. Now occupying five floors of its downtown headquarters, the university continues to expand research, public service, and academic opportunities to other locations throughout the Inland Northwest. Partnerships with the Spokane medical community have resulted in research and teaching opportunities with Eastern State Hospital, Deaconess Medical Center, Sacred Heart Medical Center, Veterans Hospital, Kootenai County Medical Center, and Shriners Hospital. WSU computer science and engineering courses are now housed at Spokane Intercollegiate Research and Technology Institute (SIRTI), located at the Riverpoint campus. The Cooperative Academic Library Services (CALS) is located in the downtown Peyton Building. It serves WSU students in Spokane and Eastern Washington University (EWU) students enrolled in Spokane classes.

The WSU Speech and Hearing Sciences Department and EWU’s Communication Disorders Department jointly offer diagnostic and rehabilitative services for individuals of all ages with a variety of speech, language, and hearing problems, including problems resulting from brain injury or neuromuscular disability. Fitting of hearing aids, assistive and personal listening devices, auditory training, and lip-reading instruction also are provided. The clinic provides a training center for graduate students from both programs, as well as a service to the community. It is located on the sixth floor of WSU Spokane’s downtown headquarters.

WSU Spokane’s first specially-designed facility at Spokane’s Riverpoint Higher Education Park is the Phase 1 Classroom Building. It houses the Interdisciplinary Design Institute, a unique collaboration among the design disciplines at WSU. Students and faculty from architecture, construction management, interior design, and landscape architecture work and learn together in a team-oriented, urban environment. Design programs offered in Spokane include the fourth and fifth years of the respective degree programs. Design courses for prospective graduate degrees in architecture, interior design, and landscape architecture are also available. A Doctor of Design is planned for the end of the decade.

Spokane offers a unique educational environment and access to clinical populations for WSU graduate students and researchers. WSU Spokane’s research roles are further achieved through the following facilities.

Health Research and Education Center (HREC) fosters the development of clinical and applied research in biomedical and social health arenas. The center contributes to the improvement of human health and facilitates economic development of the region by fostering innovation, technology transfer, and applied research. It serves as a link between researchers from the university, the Spokane health care community, and funding sources. HREC activities encompass the basic health sciences as well as diverse specialized areas including: patient outcome research, clinical pharmacology, neurosciences and mental health, cardiology, oncology, organ transplantation and immunology, diabetes, and radiation biology and health physics. A special feature of the HREC is a biomedical research laboratory system in conjunction with major health care institutions in Spokane.

The Washington Institute for Mental Illness Research and Training (WIMIRT) The Washington Institute for Mental Illness Research and Training was established to facilitate collaboration between state government and state colleges and universities with the goal of conducting research, training, and clinical program development of direct benefit to mentally ill persons in Washington state. The eastern branch of the institute is co-located at Washington State University and Eastern State Hospital. Research activities are intended to improve the care and treatment of mentally ill individuals by determining the effectiveness of new treatment methods and evaluating the impact of changes in public policy. Education and training activities are directed toward improving the quality and competence of persons providing care and treatment to mentally ill persons. Institute staff conduct research and training in a variety of settings with both providers and consumers of mental health care.

Washington State Institute for Community-Oriented Policing (WSICOP), housed at WSU Spokane, is a partnership between WSU, Washington Associations of Sheriffs and Police Chiefs (WASPIC), and the Washington Criminal Justice Training Commission. WSICOP helps further the mission of community policing by providing training to police officials and community members, technical assistance to law enforcement agencies, and by conducting research on the implementation and effects of community-oriented policing. In addition, WSICOP provides a centralized forum for information sharing and problem solving among community-oriented policing agencies and for disseminating research findings at state and federal levels.

Two further examples of WSU Spokane’s wide array of programs are:

Area Health Education Center (AHEC), jointly sponsored by WSU and UW, provides education and training programs for rural health professionals. Located at WSU Spokane, AHEC works with community health care providers and the university to address such issues as recruitment and retention of physicians, nurses, and other health care professionals in rural and underserved areas. WSU is further committed to assisting rural communities in maintaining high-quality health care through applied research, consultation, and the development of a clearinghouse under the auspices of the Office of Rural Health.

Small Business Development Center (SBDC) employs business development specialists from both WSU and the Community Colleges of Spokane, a combination that provides business clients with access to a broad range of resources, including long-term management and technical assistance and workshops covering vital areas of business operation. Offices are located at SIRTI.

Priorities at WSU Spokane include serving placebo students as well as full-time, traditional students; enhancing the economic development of the region; and utilizing the urban environment to provide internships and conduct research within the community. To meet these goals, courses are scheduled at convenient times for both part-time working adults and full-time students. In addition to classes taught by resident faculty, many courses delivered to WSU Spokane via the Washington Higher Education Telecommunications System (WHETS) are taught by experts on other WSU campuses.

Graduate programs and courses currently are available in these areas: computer science, criminal justice, electrical engineering, engineering management, health policy and administration, human nutrition, materials science and engineering, mechanical engineering, and speech and hearing sciences (communication disorders). Course work and internships for student teachers and for experienced educators seeking the superintendent's credential and principal's certification through the College of Education also are offered at WSU Spokane. The Spokane campus is the site of the final stages of undergraduate professional education for all students enrolled in pharmacy, and for many students enrolled in architecture, construction management, interior design, and landscape architecture. The Doctor of Pharmacy at WSU Spokane is the only doctoral degree offered at a branch campus in the state. Course work also is available in a variety of other disciplines, including certificate programs in health care management and policy, real estate, and insurance.

For details, contact:

Enrollment Services
WSU Spokane
601 West First Avenue
Spokane, Washington 99204-0399
(509) 358-7500
shorj@wsu.edu
WASHINGTON STATE UNIVERSITY AT TRI-CITIES

James Cochran, Campus Executive Officer and Dean

WSU Tri-Cities in Richland delivers 300-400-level undergraduate and graduate education to the citizens of the greater Tri-Cities region and the neighboring counties. Students may earn advanced degrees in biology, business administration, chemistry, chemical engineering, civil engineering, computer science, education, electrical engineering, engineering management, environmental engineering, environmental science, materials science and engineering, and mechanical engineering. Undergraduate degrees may be earned in agriculture, business, computer science, electrical engineering, environmental science, general studies (humanities, physical sciences, and social sciences), mechanical engineering, and nursing.

The majority of courses leading to a bachelor’s degree in chemical engineering can be taken, as well as courses in mathematics, statistics, counseling psychology, and educational administration and supervision, among others. Certification programs in education are also offered, as well as a Master in Teaching program. Anticipated additions include graduate programs in communication and environmental chemistry, as well as baccalaureate programs in biology and education.

Research provided through WSU Tri-Cities responds to the unique needs of the region. Major efforts include the Earth and Environmental Sciences Laboratory, exploring subsurface saturation and flow; the Electronic Materials Laboratory, investigating solar cell production; and eddy current research, applying numerical modeling for non-destructive testing applications. The administrative offices for the United States Transuranium and Uranium Registries are also housed on this campus. In addition, WSU Tri-Cities provides cooperative research and internship opportunities with Department of Energy and Hanford contractors who afford exceptional opportunities for research, providing expertise, facilities and equipment not available at most universities.

The Food and Environmental Quality Laboratory has been established as part of WSU’s College of Agriculture, the USDA, the Tri-State (Washington, Oregon, Idaho) Pesticide Research Program and the federal IR-4 Program. It assists farmers, orchardists, and other pesticide users with residue analysis and risk/benefit assessment and is active in sustainable agriculture programs.

Public services also reflect the requirements of the citizens in the Columbia Basin region. WSU Radio and Television Services programming and development for KFAE-FM and KTNW-TV are facilitated through offices and studios on the Tri-Cities campus. The Center for Professional Education serves thousands of citizens each year with non-credit courses and seminars.

Cooperative Extension regional offices and faculty expertise are also housed on this campus. In addition, the Yakima Valley/Tri-Cities Mathematics, Engineering, Science Achievement (MESA) program prepares youth in underrepresented groups to pursue education and careers in these fields.

For details, contact:
Admissions and Registration
WSU Tri-Cities
100 Sprout Road
Richland, WA 99352
(509) 372-7250
http://www.tricity.wsu.edu

WASHINGTON STATE UNIVERSITY AT VANCOUVER

Harold Dengerink, Campus Executive Officer and Dean

WSU Vancouver offers junior-, senior- and graduate-level courses to the residents of the six-county region of southwest Washington.

Facilities at the 348-acre campus include a gallery, a food court, and walking/biking paths, as well as engineering, nursing, computer and psychology laboratories. Future facilities are expected to include additional classrooms and an early childhood education center.

WSU Vancouver currently offers undergraduate degrees in biology, English, environmental science, social science, psychology, humanities, business administration and nursing. Graduate degree programs include business administration, education, teaching, engineering management, public affairs, and a certificate program in school administration.

Community partnerships through WSU Vancouver include psychology practicum projects through various mental health and social service agencies, the collaborative professional development schools for educators, and many other efforts that serve both student and citizen.

As WSU Vancouver continues to grow, so too will its offering of degree programs. Proposed undergraduate programs include electronic communications, and human development. New graduate programs are proposed in the fields of nursing and early childhood education.

Admissions Officer
WSU Vancouver
14204 NE Salmon Creek Avenue
Vancouver, WA 98686
(360) 546-WSUV
Summary of Academic Policies

Registration

Instructions for registration and policies and procedures for dropping and adding classes are included in the Time Schedule, available in the Registrar’s Office and the Student Book Corporation. See Appendix, Rules 47-61.

Class Attendance

Students who have not attended class and laboratory meetings during the first week of the semester may be dropped from the course by the department. (Students should not assume that they have been dropped without verification from the department or Registrar’s Office). Students having extenuating circumstances which prevent their attendance during the first week should notify the Office of Student Affairs. Student Affairs will notify instructors of the absence and the reason for it. Valid reasons for missing classes do not relieve the student of making up the work missed. See Appendix, Rules 71-73.

Enrollment Limit

The average semester credit load for undergraduate students is 15 or 16 credit hours. Students are not normally advised to enroll for more than 18 credit hours. When warranted, students may enroll for credits in excess of this limit. Students will not be allowed to enroll for 20 or more hours (10 hours for summer session) without written overload approval from their major department chair or Student Advising and Learning Center advisor. (See Tuition and Fees for additional credit hour charge over 18 hours.)

Cougar Cards

Cougar cards (student photo ID cards) are required for library privileges, admission to events and activities, obtaining and cashing checks, and general university use. New students will have their photos taken during orientation. The cougar card and the athletic sports pass are required for all WSU athletic events. The cougar card with validated food service privileges will be required for service in all university dining halls.

Credit

Washington State University operates on the semester calendar. Each semester is of 15-weeks duration plus one week of final examinations.

One semester hour of credit is assigned in the following ratio of component hours per week devoted to the course of study: (1) lecture—one contact hour per week for each credit hour (two hours outside preparation implied); (2) studio—two contact hours per week for each credit hour (one hour of outside preparation implied); (3) laboratory—three contact hours per week for each credit hour; (4) independent study—three hours of work per week for each credit hour; (5) ensemble—four contact hours per week for each credit hour. The proportion of time in each course assigned to lecture, studio, laboratory, independent study, or ensemble is recommended by the faculty of the department offering the course. The term “semester hour” corresponds with “credit,” “hour,” or “credit hour” and is abbreviated to “hour” in the description of courses in this catalog. See Appendix, Rules 27-30, 33, 34, 121, 123.

Credit Hour Requirements for Full-time Enrollment

The normal load for an undergraduate student is 15 or 16 credit hours per semester. Twelve credit hours per semester is considered a full load for undergraduate students. Ten credit hours per graduate student. (Six hours in summer session is full time for undergraduates; 5 hours for graduate students.) Part-time students do not share in certain student body privileges such as participation in recognized activities, WSU Health and Wellness Services, and student publications.

Graduate students on half-time teaching or research assistantships are expected to carry 10-14 credits per semester with no more than 12 hours of graded credit (3-6 in the eight-week summer session). The Graduate School Policies and Procedures Manual explains in detail the requirements for graduate students on appointment or taking examinations.

Tuition and Fees: Based on credit hour enrollment. See page 19 of this catalog.

Financial Aid: For financial aid purposes, full-time enrollment for an undergraduate student is 12 hours and half-time enrollment is considered to be 6-11 hours. For graduate students, full-time enrollment is 10 hours and half-time enrollment is considered to be 5-9 hours. Certain financial aid programs or policies such as State Need Grant and Tuition and Fee Waivers require a student to be enrolled full-time.

Loan Deferments: Enrollment certifications for deferments on Perkins Loans (National Direct Student Loans) and Federal Family Education Loans with no break in enrollment, require at least half-time enrollment (6 semester hours) for undergraduate and graduate students. Five semester hours constitutes half-time enrollment for a graduate student on a half-time assistantship.

Federal Family Education Loans deferments, with a break in enrollment, require full-time enrollment (12 semester hours for undergraduates; 10 for graduate students). Ten semester hours constitute full-time for a graduate student on half-time assistantship, for this purpose.

Student Government: In order to be qualified for election and tenure as a student member of the ASWSU Senate, a candidate shall be a full-time paying student and must be and remain in good academic standing.

Veterans Benefits: For veterans benefits, full-time enrollment for an undergraduate student is 12 hours, three-quarters-time is 9-11 hours, half-time is 6-8 hours, and less than half-time is 5 or fewer hours. For graduate students, full-time enrollment is 8 hours, three-quarters-time is 6 or 7 hours, half-time is 4 or 5 hours and less than half-time is 3 or fewer hours. Generally 7 hours for undergraduates and 4 hours for graduate students is considered full-time during summer session. Detailed information on training time eligibility can be obtained from the WSU Veterans Affairs Office.

Foreign Students Holding F-1 Visas: The Immigration and Naturalization Service requires that nonimmigrant F-1 students be enrolled in a full course of study for the entire semester. (Twelve semester hours for undergraduate students and 10 semester hours for graduate students per semester excluding summer session is considered full-time.) Additional information on these requirements may be obtained from the Office of International Education.

Auditing

No university credit will be allowed for auditing courses. To visit a class more than three times requires an audit card which must be obtained from the Registrar’s Office. The written permission of the advisor and the instructor is required. Ordinarily audit cards will be issued only for lecture courses or the lecture portion of laboratory courses. An audit fee is charged for other than regularly enrolled full-fee-paying students. See Appendix, Rules 20, 21.

Cancellation of Enrollment

Students wishing to cancel their enrollment must do so during the first five days of the semester to avoid further financial obligation. Cancellation of enrollment (withdrawal from the university) is initiated through the Office of Student Affairs. Dropping all courses constitutes withdrawal from the university. See Appendix, Rule 70.

Classification of Students

Undergraduate students who have completed less than 30 semester credits are classified as freshmen, 30-59 1/2 semester credits as sophomores, 60-89 1/2 semester credits as juniors, and 90 and above as seniors.

Post-baccalaureate students are those who have received the baccalaureate degree but have not been admitted to the Graduate School. Sometimes called post-graduates, these students include those completing requirements for a second baccalaureate degree, those taking courses for personal enrichment, and those working toward teacher certification.

Graduate degree students are those admitted to a graduate program in a degree classification on the basis of a specific application to the Graduate School. See Appendix, Rule 25.
Numbering System of Courses

Lower-division
Courses numbered 100-199 inclusive are normally taken by freshmen.
Courses numbered 200-299 inclusive are normally taken by sophomores.

Upper-division
Courses numbered 300-399 inclusive are normally taken by juniors and seniors.
Courses numbered 400-499 inclusive are normally taken by juniors and seniors. These courses may be included in graduate programs provided they are published in the Graduate Study Bulletin and provided they are not specific requirements in preparation for graduate study.

Graduate
Courses numbered 500-599 inclusive are primarily for graduate students.
Qualified seniors may take these courses for graduate credit during their last year or summer session. Other qualified seniors may take these courses for undergraduate credit with permission of their department chair.
Courses numbered 600-800 have as a prerequisite regular student status in the Graduate School.

Professional
Courses numbered 500-800 and designated with a P following the course number are professional courses.

Computer Literacy
Washington State University offers a wide variety of courses, small group tutorials, instructional mini-seminars, and help sessions for students who feel they need assistance in acquiring computer skills. Students are encouraged to bring to campus skills in word processing, use of spreadsheets and databases, some ability to search the world wide web, and a preliminary understanding of information retrieval library systems.

Course Prerequisites
When applicable, prerequisites are listed in this catalog with the specific course prefix and number, preceded by the abbreviation: prereq. Prerequisites may be levels of competence, or courses which a student must have completed, or the standing a student must have achieved before enrolling for a specific course. For example, Calculus (Math 171) requires a prereq of Precalculus Algebra (Math 107), meaning that the student may not enroll for Math 171 until successfully completing Math 107. Prereqs may also be general as: one semester of chemistry or concurrent enrollment. (See Bio S 103.) Concurrent enrollment is indicated by the symbol cr./. Prereqs may include a level of expertise or a specified major, e.g., students may not enroll in Spanish 324 without first being fluent in Spanish, or students may not enroll in an advanced seminar before achieving senior standing in the major.
Recommended prerequisites are listed, as well, preceded by the abbreviation: rec.
Questions concerning prerequisites should be referred to the instructor of the course. Students who have not met all prerequisites may be excluded from the course, or the instructor may waive prerequisites based on demonstrated competence or equivalent academic experience.

Field Trip Guidelines
For classes or other instances in which students are expected to participate in field trips, this expectation should be included in the catalog and/or course syllabus. For classes, the reference to the field trip listed in the course syllabus should include any required fees, how travel would be accomplished, alternatives (if any), and the consequences of not participating in the required field trip. When travel is required, the responsible faculty or staff member should arrange for the transportation. If classes are to be missed, the responsible faculty or staff member should provide the students with a statement concerning absence from classes that can be given to the students’ instructors. Transportation can be scheduled through the university motor pool in accordance with section 95.35, Business Policies and Procedures Manual. The university's liability coverage is provided by Chapter 4.92 of the Revised Code of Washington (RCW). In those instances where students are permitted to drive their own cars and other students are permitted to ride with them, the responsible faculty or staff member, acting as the university’s representative, should request the student drivers to verify that:

1. They have valid driver’s licenses.
2. They have minimum liability insurance required by the state of Washington ($25,000 bodily injury per person, $50,000 per accident, $10,000 property damage).
3. The student drivers’ vehicles meet the state’s standard safety requirements.
4. The passenger capacity of the vehicles will not be exceeded.
The supervising university representative should also ensure that participants are appropriately dressed and properly advised as to safety requirements for the activity involved.

Certification of a Major
An undergraduate may certify an academic major upon completion of 24 semester hours with the approval of the appropriate department chair and notification to the Student Advising and Learning Center.
A student who has completed 60 semester hours must certify a major as a condition to further enrollment. The student initiates the certification procedures at the Student Advising and Learning Center (SALC), acquires the signatures of the academic advisor and the department chair, and returns the signed documents to the SALC Office. Certified majors who wish to transfer to another academic major do so by requesting, from the Registrar’s Office, a change of major card, and obtaining the approval and signature of the department chairs of the former major and the new major.
Students who satisfy the minimum university requirements plus any departmental core requirements with a 2.0 cumulative g.p.a. are qualified for certification except in those departments which are impacted or must meet special certification standards. Consult the departmental section of this catalog for specific departmental requirements.

Special Note on Undergraduate Certification: Since academic departments may establish additional requirements for those seeking admission to specific programs, students are reminded that admission to Washington State University does not ensure acceptance into any department or program as a certified major and degree candidate. Several academic programs including architecture, business, communication, computer science, construction management, economics, education, engineering, environmental science, fine arts, hotel and restaurant administration, interior design, landscape architecture, mathematics, music, nursing, pharmacy, psychology, and veterinary medicine are unable to accept all qualified students. In these situations, and others which may arise in the future, the most highly qualified students will be selected up to the enrollment limits in the specific program.

Departments and programs designated as impacted or those units directed to raise certification standards by external or certifying agencies may require more than the minimum 24 hours for certification and a g.p.a. higher than the minimum 2.0. Academic units may also require completion of one or more specific courses prior to certification. Units must include in their certification requirements a mechanism whereby qualified transfer students can be certified upon admission. These requirements for immediate certification may include standards more rigorous than the minimum requirements, but prior enrollment per se at WSU cannot be a condition for certification of transfer students. See Appendix, Rule 53, 55, 56.

Minor, Second Major, or Second Baccalaureate Degree
A student who has completed 90 semester hours may certify a second major or a minor with the approval of the department concerned. The student should consult with the department concerning hours and grade point requirements and an approved schedule of studies to meet such requirements.
A second major requires completion of departmental requirements for the major exclusive of General Education Requirements. A minor requires a minimum of 16 semester hours, half of which must be in upper-division course work. Upon completion of the requirements, the department will notify the Registrar’s Office, and the minor or second major will be posted on the student’s permanent record (transcript). A list of approved minors is published in the Time Schedule.
A student who desires to complete a second baccalaureate degree shall satisfy the second degree program and college requirements and present not less than 150 semester hours of credit. The first bachelor’s degree, whether at WSU
or at another accredited institution, is understood to fulfill all university requirements for graduation, including the 300-400-level requirements, University Writing Portfolio, the minimum hours for the first degree, as well as the requirements of the General Education Program. See Appendix, Rule 54.

Grading System
Washington State University uses letter grades and the four-point maximum grading scale. The grade A is the highest possible grade, and grades below D are considered failing. Plus or minus (-) symbols are used to indicate grades that fall above or below the letter grades, but grades of A+ and D- are not used. For purposes of calculating grade points and averages, the plus (+) is equal to .3 and the minus (-) to .7 (e.g., a grade of B+ is equivalent to 3.3, and A- is 3.7). Guidelines for grading may be found in Rule 90, listed in the Appendix.

A– grade points per credit hour.
B– grade points per credit hour.
C– grade points per credit hour.
D– grade points per credit hour.
F– no credit; 0 grade points. (Credits attempted are calculated in g.p.a.) Fail.
S (Satisfactory)—no grade points. (Credit not calculated in g.p.a.)
Grade given upon satisfactory completion of courses numbered 499, 600, 700, 702, 800, Special Examinations (Rule 15), and other courses duly authorized for S, F grading by the Faculty Senate. (Courses approved for S, F grading are footnoted in the Time Schedule.) A, S, or F grades only are used for physical education activity courses. Courses approved for S, F grading may also be graded S at midsemester indicating satisfactory progress.
P (Passing)—no grade points. (Credit not calculated in g.p.a.) A satisfactory grade for a course taken under the pass, fail grading option. (See below.) Instructors will turn in regular letter grades for all students enrolled in courses under the pass, fail option, but grades will appear on the student’s permanent record as P (Passing) or F (Failing).
I (Incomplete)—no credit or grade points. The term is used to indicate that a grade has been deferred. It is for students who for reasons beyond their control are unable to complete their work on time. Undergraduates or graduates who receive an I grade in an undergraduate course (100-499) have up to the end of the ensuing year to complete the course, unless a shorter interval is specified by the instructor. If the incomplete is not made up during the specified time or if the student repeats the course, the I is changed to an F. (See Rule 34.) Faculty are required to submit an instructor’s Incomplete Grade Report (IGR) to the departmental office for every I given. The IGR must specify conditions and requirements for completing the incomplete, as well as any time limitations less than one year.
W (Withdrawal Passing)—no credit or grade points. Used if the student has filed, in the Registrar’s Office, official notice of withdrawal from the course prior to the end of the 9th week, withdrawing pass in accordance with Rule 69, or withdrew from the university prior to the last day of instruction.
X (Grade Withheld)—no credit or grade points. Denotes continuing progress toward completion of special problems, research, thesis, or doctoral dissertation, i.e., 499, 600, 700, 702, 800; X grades are converted to S upon satisfactory completion. An X grade may also be used when no final grade is reported due to instructor’s illness or absence from town. See Appendix, Rule 90, 92, 98-103.

Grade Point Average
The student’s grade point average (g.p.a.) is computed by dividing grade points earned by the number of credit hours attempted. Grades P and S do not carry grade points, and the credit hours are not calculated into the g.p.a. Credits attempted for F grades are calculated into the g.p.a. Transfer and other nonresident credits are not computed in the Washington State University grade point average. The following example illustrates computation of the g.p.a.:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Grade</th>
<th>Grade points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 301</td>
<td>3</td>
<td>A</td>
<td>12.0</td>
</tr>
<tr>
<td>Bio 422</td>
<td>3</td>
<td>C</td>
<td>5.1</td>
</tr>
<tr>
<td>Soc 420</td>
<td>3</td>
<td>B+</td>
<td>9.9</td>
</tr>
<tr>
<td>Mus 491</td>
<td>2</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Soc 499</td>
<td>4</td>
<td>S</td>
<td></td>
</tr>
</tbody>
</table>

Credit hours attempted (9) divided into total grade points earned (27) = g.p.a. (3.00) Total hours earned: 15

Note: P and S grades yield no grade points, thus are excluded from the g.p.a. calculation.

Courses taken by correspondence yield grade points toward graduation. Grades earned in courses through Extended University Services sponsored by Washington State University yield grades toward graduation. Correspondence or extension work submitted for transfer credit yields credit only if completed with a grade of C or better. See Appendix, Rules 99-103.

Grade Reports
Midsemester grades are issued to freshmen students with fewer than 24 semester hours of credit and are mailed to the student’s local address. Final grade reports for all students are mailed to the student’s permanent home mailing address at the end of the fall and spring semesters. Only one grade report is produced per student. Students requesting an additional grade report must order a copy of their official transcripts.

Transcripts
An official copy of a student’s academic record at Washington State University that bears the official seal of the university and the signature of the Registrar is referred to as a transcript. The transcript must include all work taken at Washington State University. Requests for transcripts must be accompanied by the student’s signature and a $3.45 fee per copy. Phone orders for transcripts cannot be accepted. NOTE: Financial indebtedness to the university will prevent the release of a student’s transcript.

Transcripts of secondary or higher education study that have been submitted to WSU as a requisite for admission cannot be returned to the student. Students desiring transcripts from other institutions must order official transcripts directly from the institution at which the work was taken. WSU does not issue or certify copies of transcripts from other institutions.

Repetition of Courses
Courses completed with a grade of C or above may not be repeated for credit or grade points.

Students may repeat courses in which they have received a grade of C- or below only if there is space available in the course. If a student repeats a course in which an I (incomplete) grade was received, the I grade will be changed to F.

When a student repeats a course and earns another grade, the series of repeats and grades will be retained on the student’s official record. However, the last grade only shall be calculated in the cumulative grade point average and contribute to the total number of hours required for graduation.

In determining scholarship for graduation honors, the first grade only shall be used. It is the student’s responsibility to indicate repeat courses at the time of registration. Repeats by correspondence, extension, or in residence at other institutions must be reported orally or in writing to the Registrar’s Office. If a student transfers a course to WSU from another institution and subsequently repeats the course at WSU, only the credit and grade points earned at WSU will be allowed. See Appendix, Rule 34.

Courses Approved for Repeat Credit
Some courses have been approved for repeat credit, i.e., the student may enroll in the same course during a subsequent semester and additional credit and grade points will be accumulated. An example of such a course would be Special Topics in which the course content may vary from semester to semester. Courses approved for additional credit, with maximum credit allowable, if any, will be indicated in the catalog, e.g., may be repeated for credit; cumulative maximum 6 hours. See Appendix, Rule 34.

Pass, Fail Grading Options
Pass, fail options are available for undergraduate and graduate students. Specific characteristics of the two options are listed below. During registration, students indicate that they wish to enroll in the course on a pass, fail basis. The adviser’s approval is required for undergraduates. Information indicating which students are enrolled on a pass, fail basis will not appear on class lists transmitted to instructors. Instructors turn in regular letter grades for all students, and the Registrar’s Office will change all grades of A through D to P for those enrolled pass, fail. The P grades earned by pass, fail enrollees will not be included in computing the g.p.a.; however, F grades earned by pass, fail enrollees will be included
in g.p.a. computations. Courses approved for S, F grading (Rule 90f) are excluded from the pass, fail option. Courses approved for S, F grading are footnoted in the Time Schedule.

A student may change a pass, fail enrollment to a regular letter-graded enrollment, or vice versa, during the first three weeks of classes. After the third week and through the last day of instruction in a semester (end of the 15th week), a pass, fail enrollment can be changed to a letter-graded enrollment.

Undergraduate Pass, Fail Option: A total of six courses may be taken on a pass, fail basis by students initiating and completing work for a baccalaureate degree at Washington State University. No courses designated as meeting General Education Requirements for Graduation may be taken pass, fail. No more than two courses may be taken on a pass, fail basis during any given semester. One course is the limit for summer session. Students in the College of Veterinary Medicine with advisor approval may enroll for a total of six courses in the professional curriculum on a pass, fail basis, subject to the regulations listed above.

Allowances for transfer students are as follows:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Allowance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-44</td>
<td>six courses</td>
</tr>
<tr>
<td>45-59</td>
<td>five courses</td>
</tr>
<tr>
<td>60-74</td>
<td>four courses</td>
</tr>
<tr>
<td>75-89</td>
<td>three courses</td>
</tr>
<tr>
<td>90 and above</td>
<td>two courses</td>
</tr>
</tbody>
</table>

University Honors Program courses may be taken on a pass, fail basis only with the permission of the Honors Program Coordinator. Departments and programs may deny their majors permission to take, on a pass, fail basis, courses in their major field or courses needed to meet departmental requirements.

Departments and programs may refuse to accept courses needed to meet the above requirements if the courses were completed on a pass, fail basis before the student was accepted into the department or program.

Graduate Pass, Fail Option: Class 5 (except those working on a second baccalaureate degree) and Class 6 (graduate) students are eligible to take courses on a pass, fail basis, but such work cannot be in the student’s official degree program or used for removal of a specific undergraduate deficiency. Credit hours earned under pass, fail are counted toward assistantship minimum hour requirements. There is no limit on the number of hours a graduate student may take on a pass, fail basis. See Appendix, Rules 50, 90.

Honors

President’s Honor Roll. An undergraduate student will be named to the President’s Honor Roll under either of the following conditions:

(a) By achieving a grade point average of 3.75 in at least 9 graded hours in a single term at Washington State University.
(b) By achieving a cumulative grade point average of 3.50 based on at least 15 cumulative hours of graded work at Washington State University.

Graduation Honors. Candidates for baccalaureate degrees who have completed at least 30 hours of graded work (grades in which grade points are awarded) at Washington State University will graduate summa cum laude if the cumulative grade point average for work completed at Washington State University is 3.80 or better and will graduate cum laude if the cumulative grade point average is 3.50 but less than 3.80. The appropriate Latin phrase will be printed on the diploma and on the final transcript. Qualifed students electing to participate in the Honors Program who complete its requirements satisfactorily, regardless of whether they qualify to graduate summa cum laude or cum laude, will receive a certificate of completion and a printed notation on the final transcript. Computation of graduation honors will be done prior to the final semester to allow for publication of the appropriate honors in advance of graduation. However, following the student’s final semester, the Registrar’s Office will recompute the student’s g.p.a. including the last semester’s work, and only this computation will determine official graduation honors. See Appendix, Rules 133, 137.

Academic Complaint Procedure

Students having complaints relative to instruction or grading should refer them first to the instructor and, if not resolved, then to the chair of the department in which the course is offered. The chair, if not able to resolve the problem to the student’s satisfaction, will refer the complaint, presumably with the chair’s written impressions, to the dean of the college. The student is encouraged then to go directly to the dean of the college. The Ombudsman, the Vice Provost for Student Affairs, and the Provost are always available for any complaint not resolved to the student’s satisfaction. See Appendix, Rule 104.

Academic Deficiency

Undergraduate students are expected to maintain at least a 2.00 cumulative grade point average during their academic careers at WSU. A student who falls below a 2.00 cumulative g.p.a. or who falls below a 2.00 semester g.p.a. for two consecutive semesters is considered academically deficient.

Students in the Advisory Program of the Student Advising and Learning Center who are deficient must apply to the Student Advising and Learning Center for reinstatement. For certified majors the Student Advising and Learning Center grants to the student’s academic department the decision on reinstatement. If denied reinstatement by the academic department, a student may appeal to the Student Advising and Learning Center for continued enrollment in another department.

A student whose cumulative g.p.a. is deficient for two consecutive semesters is normally dropped. A student who feels there are important extenuating circumstances can appeal to the Student Advising and Learning Center. A student whose work is improving (semester g.p.a. of 2.00 or better), even though the cumulative g.p.a. is below a 2.00 for two semesters, is usually reinstated.

All students reinstated under any of the above provisions will be on academic probation and must abide by specific probationary conditions or be subject to denial of registration in succeeding semesters.

Decertification

Once certified, a student cannot be decertified by the department unless the student becomes academically deficient under Academic Regulations, Rules 37, 38, or 39. Students decertified under these rules must meet the approved additional criteria for recertification, if any. Some departments and programs may decertify students who fall below the g.p.a. required for certification. See Appendix, Rules 37-43.

Student Rights Regarding Education Records

Federal law requires Washington State University to annually notify students currently in attendance at the university of their rights under the Family Educational Rights and Privacy Act (FERPA). Under FERPA, a student has the right to:

1. Inspect and review his or her education records. "Education records" means those records that are directly related to a student and are maintained by Washington State University or by a party acting for Washington State University;
2. Request the amendment of the student’s education records to ensure that they are not inaccurate, misleading, or otherwise in violation of the student’s privacy or other rights;
3. Consent to disclosures of personally identifiable information contained in the student’s education records, except to the extent that FERPA authorizes disclosure without consent;
4. File with the Department of Education a complaint concerning alleged failures by Washington State University to comply with the requirements of FERPA; and
5. Obtain a copy of the Washington State University policy regarding student records showing how the university meets the requirements of FERPA.

Washington State University may release directory information contained in a student’s education records. "Directory information" means information contained in an education record which would not generally be considered harmful or an invasion of privacy if disclosed. Directory information includes name (including any former name), local and permanent addresses, telephone numbers, major and minor fields of study, class, participation in officially recognized activities in sports, weight and height of members of athletic teams, dates of attendance including number of hours enrolled, degrees, certificates, and awards received including the President’s Honor Roll, and the most recent previous educational institution attended by the student. Students may request that the university not release directory information by filing a request with the Registrar’s Office or in the Office of Payroll Services by the tenth day of the semester.
The Washington State University policy on student records can be found in the Washington Administrative Code 504-21. A complete text of this policy is available upon request from the Registrar’s Office, 346 French Administration Building.

Application for Graduation
A student who has (a) completed any of the four-year collegiate curricula, and (b) satisfied the University Requirements for Graduation and any additional departmental or college requirements with a minimum of 150 semester hours of credit as published in the catalog may, if they wish, fulfill the general university requirements. Those who take longer to complete their degrees under the exception to policy listed below. Application for a bachelor’s or DVM degree should be made at the Registrar’s Office near the end of the junior year and at least 60 days prior to the expected graduation date. A graduation application must be on file in the Registrar’s Office before a student can graduate. A graduation fee must be paid at the time of application.

Candidates must present a minimum of 120 semester hours of credit for graduation including a minimum of 40 semester hours of credit in upper-division courses and a minimum of 30 hours earned at WSU for a four-year degree. 500-level courses will count toward the upper-division requirements, but an undergraduate may not be required to enroll in or complete a 500-level course as a requirement for a baccalaureate degree.

A student desiring a second bachelor’s degree shall satisfy the second degree program and college requirements and present not less than 150 semester hours of credit to receive the second degree. Credits applied toward a graduate degree may not be used for a baccalaureate degree.

Students are required to earn a C average or better in all work taken at this institution. The student must also earn a C average or better in all major subjects. Any deficiency on transfer credit must be removed by work taken through Washington State University.

For otherwise qualified students with disabilities, individual course requirements or specific requirements within courses may be waived. Waivers of departmental requirements must be approved by the major department. Waivers of specific requirements within courses must be approved by the department teaching the course. A request for waiver of university requirements must be made directly to the Senior Petitions Committee and be approved by the student’s department chair and college dean. Petition forms for waiving university and college requirements are available in the Registrar’s Office. See Appendix, Rule 106.

Catalog Options and Limitations
The graduation requirements of the university and its colleges as published in the catalog in effect at the time of the student’s initial enrollment are those which must be met for completion of an undergraduate degree program. For transfer students, the initial enrollment date shall be that upon which the student entered postsecondary education. Subsequent changes in degree requirements, as published in the catalog or amended by the Faculty Senate, may be substituted at the option of the student.

Undergraduates who will not graduate within the normal minimum degree time frame (four years for four-year baccalaureate programs, five for a five-year and six for a six-year program) have a total of eight years in four-year programs and ten in five- and six-year programs to complete their degrees under their original catalog requirements. Those who take longer to complete their degrees must meet the University and General Education requirements for graduation as published in the catalog four years prior to the date of graduation, with the exception to policy listed below.

Students who initiated their post-secondary education prior to fall 1991 (fall 1993 for transfer students) may, if they wish, fulfill the general university requirements for graduation as published in the 1989-91 catalog. This policy does not apply to major and college requirements. All major program and college requirements must be fulfilled as published in the catalog at the time of certification, or, if too much time elapses, the major and college requirements as listed in the catalog four years prior to graduation.

Official name changes in degree titles will go into effect automatically for all students according to the effective date approved by the Faculty Senate. Students currently enrolled and certified in a degree program at the time of a name change will have the privilege of graduating with either the old or the new degree title. The option of selecting the old degree title will originate with the student, and it will be the responsibility of the department, in signing the degree application, to determine whether or not the student is eligible (i.e., when the student certified). Departmental requirements for graduation (including those in a college which does not have separate departmental requirements) are those in effect at the time the student initially certifies the major. Changes in departmental requirements after certification will apply provided they neither require a student to enroll in more than a normal complement of credit hours in any semester nor prolong the time required to complete degree requirements. Department and program chairs have authority to waive or provide substitute course work for departmental requirements. See Appendix, Rules 108-137.

Statement of Institutional Responsibility
As a general rule, undergraduate students who are certified majors or graduate degree candidates can assume that a degree will be granted if they maintain continuous enrollment and meet all requirements as listed in Academic Regulations, Rules 114-118. However, because of serious reductions in financial support, loss of faculty, or for other significant reasons, the university may from time to time find it necessary to discontinue a degree program. When this occurs, further admission into the degree program will be frozen effective with the official action dropping the degree, and every effort will be made to allow currently enrolled majors and graduate degree candidates to complete their degrees within a reasonable period of time. To facilitate this process, department and program chairs (or the appropriate dean) have the obligation to provide for the individual needs of these students: e.g., (1) students may be encouraged to complete their requirements in similar or related degree tracks; (2) although University Requirements for Graduation and the minimum total hours for the degree may never be waived, the student’s major department may waive or substitute departmental degree requirements (approval of the Graduate School required for graduate students); (3) undergraduate students may be allowed to complete remaining requirements at another institution under Rule 114(a) 5. Graduate students may be allowed to take courses or conduct research at another institution when approved by the student’s graduate committee and the Graduate School. In all cases, all financial obligations are the responsibility of the individual student involved, except as otherwise noted in this catalog or the Graduate Studies Bulletin.

University Requirements for Graduation
University requirements for the baccalaureate degree have been established by the faculty as an expression of the common degree expectations for all Washington State University graduates. While the greater part of students’ courses of study will be devoted to their major field or specialization, the foundation of the undergraduate curriculum is the General Education Program. General Education is, in fact, an attempt to accommodate the increasing specialization of the university within the broader, traditional objectives of higher education while encouraging students to develop themselves to the fullest extent possible. The role of General Education in the modern higher educational curriculum is to address needs and objectives not adequately served by academic specialization. It encompasses the following aims:

Realizing Individual Student Potentials: One purpose of higher education is to foster and nurture potentials in the individual; hence, General Education aims at personal enrichment, cultural awareness, and breadth of knowledge. These goals imply a curriculum that emphasizes the aesthetic and appreciative faculties, encourages experimentation and creativity, and offers opportunities for introspection and the testing of one’s own values.

Preparation for Membership in the Community: General Education is also a recognition of the value of higher education within the larger community; it prepares people for their common activities as citizens in a free society. Thus, it should provide opportunities for leadership and service while attending to education for the common life. Shared values growing out of common educational experience help to bind society together and to make communication possible. Consequently, the General Education curriculum attempts to define and explore the ever-changing body of knowledge which is deemed valuable for all to know. The needs of citizens include the development of higher-level intellectual skills, including formal literacy and critical thinking. The faculty has

Summary of Academic Policies
identified writing proficiency in particular as a priority at WSU. Accordingly, all students will satisfy WSU’s writing proficiency standards for graduation. In addition, the curriculum is designed to emphasize study of the relevant past, with the objective of developing an informed, mature, and critical mind.

Providing a Foundation for the Major: Education for the common life, however, must also include the skills and knowledge useful as a base for careers as well as for citizenship. Communication and reasoning skills have multiple functions; they serve as a base for the major, and they enhance the student’s overall abilities and intellectual maturity. To function well in the workplace, one must be able to see beyond its confines. Consequently, exposure to different values, perspectives, and cultural traditions is a valuable preparation for the kinds of work that college graduates do, and the General Education curriculum can enrich the student’s sense of the context and meaning of his or her career activities.

Methodological Competence and Integration of Knowledge: The organization of the General Education curriculum is an expression of our historical experience of how new knowledge has been acquired in the past and how it is likely to be acquired in the future. Consequently, the curriculum stresses the acquisition of a working knowledge of a broad range of scholarly disciplines. One of the goals of General Education is therefore understanding of the major fields of knowledge and the interrelationships between them. However, since students cannot possibly learn everything they need in the four or five years of their undergraduate experience, the curriculum prepares students for continued, life-long learning. Library skills and a general competence with computers are increasingly important in learning to learn.

These four goals of General Education promote not only awareness of the world, but self-awareness within the students expanding knowledge. They also encourage integration of the students’ anticipated economic roles within the whole of their experience. Toward the attainment of those goals, the faculty has established minimum standards in terms of credit hours, grade points, and distribution requirements within the General Education Program. See Appendix, Rules 106-137.

Requirements for Graduation

1. Hours and grade points - a minimum of 120 semester hours with a grade point average of 2.0 or better.
2. Upper-Division (300-400-level) - a minimum of 40 semester hours
3. The University Writing Portfolio - Successful performance with the University Writing Portfolio is a requirement for graduation at WSU. Students may satisfy this requirement, which involves submitting three papers from previously assigned class work plus two timed and proctored writing exercises, any time after successfully completing Engl 101 (or equivalent). Students must complete the portfolio no later than the end of the first semester of upper-division standing (upon completion of 60 hours). Transfer students may elect to postpone the portfolio until they have completed at least a semester of work at WSU. For details, consult the Portfolio Office, (509) 335-7959.
4. Writing in the Major [M] - Two courses identified as writing in the major [M] must be included in course work taken to meet departmental requirements. Consult the requirements in the department in which you intend to major.
5. General Education Program requirements - All students regardless of major must fulfill the minimum requirements of WSU’s General Education Program, which are described below, or University Honors Program. See Appendix, Rules 106-137.

Appendix, Rules 106-137.

| College of Liberal Arts |
| College of Sciences |
| Graduation Requirements |

All students in the College of Liberal Arts and College of Sciences must satisfy the following requirements in addition to the University Requirements for Graduation, as listed above.

Arts and Humanities [H][G], Social Sciences [S][K], and Intercultural Studies [I][G][K] 18 hours
6 credit hours in Arts and Humanities [H,G], Social Sciences [S,K], or Intercultural Studies [I,G,K] in addition to the credit hours required by the General Education Program. All courses must be outside the student’s major department or program.

Sciences [B][P] 12 hours
At least 12 total hours including the Sciences General Education Requirements and one additional three clock hour per week laboratory for a total of two laboratory courses. All courses must be outside the student’s major department or program.

Foreign Language
One year (two semesters or three quarters) of one foreign language at the university level or two years of one foreign language at the high school level. Demonstrated proficiency by means of the Foreign Language Placement Examination may substitute for actual course work.

Transfer students holding the approved Associate of Arts or Associate of Science degree from a Washington community college or Associate of Arts—Oregon Transfer degree from an Oregon community college are responsible for the additional requirements of the College of Liberal Arts and College of Sciences.
The General Education Program

WSU’s General Education Program has been converted from a simple system of distribution requirements into an integrated program which is organized vertically, allowing sequential study in depth from the freshman year to the junior or senior year. Distribution requirements in the Arts and Humanities, Social Sciences, and Sciences are organized in three tiers, indicating in broad terms the academic level of the courses and the order in which they should be taken. A portion of the General Education credit hours must be taken within a designated Area of Coherence. This requirement is a way of organizing the choices within the larger general education curriculum. Within each of the Areas of Coherence, students will select an upper-division capstone course which provides a summative experience for that particular cluster of courses. Writing instruction and writing experiences are integrated in course work throughout the three tiers.

### A. The Structure of the General Education Program

Students are required to take a minimum of 40 credit hours distributed among categories listed below. Fifteen of these credit hours (i.e., five courses), including the capstone course, must also be taken within an Area of Coherence.

#### Tier I: 15 semester credit hours
- World Civilizations [A] GenEd 110 and 111 — 6
- Written Communication [W] — 3
- Mathematics Proficiency [N] — 3
- Sciences [Q] — 3

#### Tier II: 22 semester credit hours
- Communication Proficiency [W], [C] — 3
- Arts and Humanities# [H], [G] — 3
- Social Sciences# [S], [K] — 3
- Arts and Humanities/Social Sciences# [H], [G], [S], [K] — 3
- Intercultural [I], [G], [K] — 3
- Sciences* [B], [P] — 7

#### Tier III: 3 semester credit hours
- Capstone Course — 3

**Total hours: 40**

* # A total of 9 hours of Arts and Humanities and Social Sciences with a minimum of 3 in either.

* # At least 3 hours in Biological Science and 3 hours in Physical Science plus 1 additional hour for three clock hours per week of laboratory.

### B. General Rules

No course designated as a General Education Requirement (GER) can be taken on a pass, fail basis. Courses in, or crosslisted with, a student’s major field may not be used to satisfy General Education Requirements, except in Written Communication Proficiency (see C below).

Transfer Students who have completed an approved Associate of Arts (AA) or Associate of Science (AS) degree at a Washington community college or an Associate of Arts—Oregon Transfer degree from an Oregon community college, including a course pattern which approximates the General Education Requirements for Graduation of Washington State University, as determined by the WSU Office of Admissions, will be considered to have fulfilled the lower-division General Education Requirements. These students will still be responsible for meeting the other requirements for graduation, including those in the college and major department. The University Writing Portfolio and the upper-division capstone course are not lower-division requirements and therefore cannot be satisfied by the approved AA or AS degrees.

### C. General Education Distribution Requirements

1. **World Civilizations [A]** — 6 hours (GenEd 110 and 111)
2. **Communication Proficiency [C]** — 6 hours including at least 3 in written communication [W] at Tier I, and 3 of [W] or [C] at Tier II

Prior to enrollment in freshman writing courses, all students must take a Writing Placement Examination for the purpose of placement in appropriate writing courses. These placements are mandatory. The Writing Placement Examination is administered during summer New Student Orientation, at the beginning of fall semester, and prior to spring registration. Examination results will place students in the core writing course, Engl 101, Introductory Writing (or equivalent), or in Engl 101 plus 1 hour of Engl 102, Writing Tutorial. Students whose native language is not English may be placed in Engl 105, Composition for ESL Students. In some instances, students may be exempted from Engl 101 on the basis of their performance in the Placement Examination. Questions should be directed to the WSU Writing Lab, Avery Hall, (509) 335-4072.

3. **Mathematics Proficiency [N]** — This requirement can be satisfied by passing a designated course or courses in mathematics (see below), through satisfactory performance on an Advanced Placement examination, or by passing a calculus course beyond Math 171.

4. **Arts and Humanities [H], [G]** — 3 hours minimum; a total of 9 hours at Tier II must be satisfied within Arts and Humanities and Social Sciences

5. **Social Sciences [S], [K]** — 3 hours minimum; a total of 9 hours at Tier II must be satisfied within Arts and Humanities and Social Sciences

6. **Intercultural Studies [I], [G], [K]** — 3 hours at Tier II

7. **Sciences [B], [P], [Q]** — 10 hours including at least 3 hours in Biological Sciences and 3 hours in Physical Sciences, plus 1 credit for three clock hours of laboratory. Students may elect to fulfill the science requirement by taking all 10 credits in Tier II.

8. **Capstone course** — 3 hours at Tier III; capstone courses are upper-division (400-level) and function as summations of the Area of Coherence, integrating and unifying the body of material identified as the subject of the Area of Coherence (see description below).

1. Students are required to take a minimum of 15 credit hours or five courses in an Area of Coherence which consists of a group of related courses designated in the WSU Catalog.

2. All three tiers must be represented in the course selections fulfilling the Areas of Coherence requirement, including a capstone course of the student’s chosen Area of Coherence; only 3 of the 15 hours can be in Tier I. Neither capstone courses nor any course taken for General Education may be within or crosslisted with a student’s own major.

3. Students may take Tier II courses only after completion of the required Tier I and II courses within the selected Area of Coherence, and after earning approximately 60 total hours.

**Total hours of General Education: 40**

### D. The Tiers in the General Education Program

Courses satisfying the distribution requirements listed above are organized conceptually in three tiers.

**Tier I** is designed for entering freshmen and addresses the essential knowledge and skills needed for success in the rest of the undergraduate curriculum. It is intended to provide a common foundation for later learning, to establish connections among the principal areas of scholarship, and to convey a sense of the fundamental issues and methods in these areas.

**Tier I** consists of core courses (required of all entering freshmen) in **World Civilizations** (GenEd 110 and 111) and **English composition** (Engl 101); broad introductory courses in the sciences (designated [Q]); and a selection of courses in **mathematics** (designated [N]). With the exception of some of the mathematics courses, Tier I courses are numbered at the 100 level.

**Tier II** courses are typically introductions to the scholarly disciplines and constitute the bulk of the distribution requirements in the several academic areas: Arts and Humanities, Social Sciences, Intercultural Studies, Biological and Physical Sciences, and Communication Proficiency. Some more advanced Tier II courses provide continued experience with representative scholarly approaches, methods, and issues. Courses in this tier will commonly be taken in the student’s first two years of study. While Tier II courses are designed to build on Tier I, the demands of scheduling may make it necessary to take courses from these two tiers concurrently. Hence,
Tier I courses are not absolute prerequisites for Tier II courses. Tier II courses are designated at the 100, 200, or 300 level, as appropriate.

Tier III provides the final component of sequential study in general education, the capstone course, which is designed to assist students in integrating and synthesizing knowledge from previous course work. Tier III courses are upper-division (400-level) and function as the capstone of the Area of Coherence, integrating and unifying the body of material identified as the subject of the Area of Coherence. Tier III capstone courses have as a general prerequisite 60 hours of course work and completion of one Tier I and three Tier II courses in appropriate area of coherence; there may be additional prerequisites for specific courses. Capstone courses which are broadly interdisciplinary or topical in nature will carry [T] designations in the WSU Catalog and Time Schedule. In some instances, if a capstone course has a clear focus within one of the knowledge domains [e.g., H, S, P, or B], it may be so designated, with its status as a capstone course in Tier III indicated by its 400-level number.

E. The Areas of Coherence

Five courses (i.e., 15 hours) of the General Education distribution requirements must be taken within a cluster of courses which organize related material on a broad designated topic (see list of Areas of Coherence below). These courses are organized sequentially through progressively more sophisticated and detailed examinations of the subject. The purpose of the Area of Coherence requirement is study in depth within General Education. The Area of Coherence is intended to assist students’ integration of knowledge from various knowledge domains and to permit more sharply focused study within related course work.

The specific Areas of Coherence are:

1. Foundations of Western Civilization
2. Foundations of the Modern World
3. American Cultures
4. The Nature of Humanity
5. The Structure of Society
6. Forms of Artistic Expression
7. Human Values and Religious Thought
8. Global Perspectives
9. Ecology of the Planet
10. The Nature of Matter and Energy
11. Science and Society
12. Measures of the World

Policy relating to the Areas of Coherence

1. Students are required to take a minimum of 15 credit hours (i.e., five courses) in an Area of Coherence, which consists of a group of related courses designated in the WSU Catalog; see pages 33-38.

2. All three tiers must be represented in the course selections fulfilling the Areas of Coherence requirement; only 3 hours can be at Tier I.

3. Tier I courses are numbered at the 100 level; Tier II courses at the 100, 200 and 300 levels; and Tier III at the 400 level.

4. The Tier III course functions as the capstone of the student’s Area of Coherence. Tier III capstone courses have two functions: helping the perspectives of several disciplines or knowledge domains to bear on a topical subject and providing a more advanced treatment of material representative of the Area of Coherence. Neither capstone courses nor any course taken for General Education may be within or crosslisted with a student’s own major.

5. Tier III courses are offered exclusively at the upper-division level and are therefore, by definition, upper-division graduation requirements not fulfilled by AA or AS degrees.

6. Students may take Tier III courses only after completion of the required Tier I and II courses within the selected Area of Coherence and after earning approximately 60 hours.

7. Some General Education courses may play a role in more than one Area of Coherence. Consult the specific course lists for each Area of Coherence below on pages 47-54.

F. Courses Which Satisfy the Distribution Requirements in General Education

Note: Crosslisted courses appear in italics.

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**WORLD CIVILIZATIONS**

[A] (6 hours)
The World Civilizations Tier I core courses provide an overview of the human past and an introduction to the academic culture of the university. The course work is designed to provide integrated study of the social, political, philosophical, and religious systems of the major world civilizations, along with an introduction to their distinctive art forms.

**Tier I**

- GenEd 110 World Civilizations I
- GenEd 111 World Civilizations II

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**COMMUNICATION PROFICIENCY**

[W, C] (6 hours)
Requirements in Communication Proficiency may be satisfied by courses (see below) emphasizing the improvement of communication skills in the English language in both oral and written performances. Courses designed to improve writing and speaking skills primarily in a specific discipline or profession are not eligible for GER status.

**Written Communication Proficiency**

**Tier I**

- Engl 101 Introductory Writing
- Engl 105 Composition for ESL Students
- Engl 198 English Composition Honors

**Tier II**

- Engl 200 Expository Writing
- Engl 201 Expository Writing
- Engl 301 Advanced Writing
- Engl 302 Writing About Literature
- Engl 402 Technical and Professional Writing
- Engl 403 Technical and Professional Writing ESL
- Phil 200 Writing and Reasoning

**C. COMMUNICATION PROFICIENCY**

**Tier II**

- H D 205 Communication in Human Relations
- SpCom 102 Public Speaking: Theory, Models, and Practice
- SpCom 235 Principles of Group Communication
- SpCom 302 Advanced Public Speaking
- SpCom 324 Argumentation

---

**MATHEMATICS PROFICIENCY**

[N] (0-6 hours)
The objectives of the Mathematics Proficiency requirement are to establish a foundation of understanding of mathematics beyond arithmetic and algebraic manipulations and to establish a foundation of understanding of the uses of mathematics in applications to real-world problems. This requirement can be satisfied by passing a designated course or courses in mathematics (see below), through satisfactory performance on an Advanced Placement examination, or by passing a calculus course beyond Math 171.

**Tier I**

- Math 140 Mathematics for Life Scientists
- Math 171 Calculus I
- Math 202 Introduction to Mathematical Analysis
- Math 205 Statistical Thinking
- Math 206 Mathematical Analysis for Architects
- Math 210 Introduction to Mathematics
- Math 212 Introduction to Statistical Methods
- Math 251 Mathematics for Elementary School Teachers I and
- Math 252 Mathematics for Elementary School Teachers II
- Stat 205 Statistical Thinking
- Stat 212 Introduction to Statistical Methods

---

**ARTS AND HUMANITIES**

[H, G]* (3-6 hours)
Requirements in the Arts and Humanities may be satisfied by courses (see below) which take a historical, critical, or appreciative approach to the study of human culture as manifested in literature, languages, philosophy, art, music, or drama. These courses should introduce the student to the record of human creativity and provide a basis for assessing its value and significance in human development.

*G* designates courses which meet GERs in either Arts and Humanities or Intercultural Studies.
Tier II Arts and Humanities (H)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>Am St 216</td>
<td>Main Currents in American Culture</td>
</tr>
<tr>
<td>Arch 202</td>
<td>The Built Environment</td>
</tr>
<tr>
<td>Arch 220</td>
<td>Architectural History I</td>
</tr>
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<td>Arch 221</td>
<td>Architectural History II</td>
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<tr>
<td>Drama 160</td>
<td>Introduction to Theatre</td>
</tr>
<tr>
<td>Drama 365</td>
<td>Theatre History I: Beginnings to 1700</td>
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<td>Drama 366</td>
<td>Theatre History II: 1700 to 1900</td>
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<td>Engl 108</td>
<td>Reading Literature</td>
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<td>Engl 199</td>
<td>English Composition and Literature Honors</td>
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<td>Readings in Literature in English Through the 18th Century</td>
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<td>Readings in Literature in English Since the 18th Century</td>
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<td>Main Currents in American Culture</td>
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<td>Engl 261</td>
<td>Literary Masterpieces</td>
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<td>Engl 305</td>
<td>Shakespeare</td>
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<td>Introduction to Literary Criticism</td>
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<td>Women Writers</td>
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<td>Engl 335</td>
<td><em>The Bible as Literature</em></td>
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<td>Engl 366</td>
<td>The English Novel to 1900</td>
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<td>The American Novel to 1900</td>
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<td>F A 202</td>
<td>World Art History</td>
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<td>F A 303</td>
<td>Modern Art—19th Century</td>
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<td>Modern Art—20th Century</td>
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<td>Germanic Civilization</td>
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<td>Introduction to German Literature</td>
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<td>Hist 341</td>
<td>Rome: Republic and Empire</td>
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<td>Hist 342</td>
<td>History of England to 1485</td>
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<td>Hum 103</td>
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<tr>
<td>Hum 202</td>
<td>Humanities in the Middle Ages and Renaissance</td>
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<td>Hum 303</td>
<td>Reason, Romanticism, and Revolution</td>
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<td>Musical Style in Composition</td>
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<td>Mus 361</td>
<td>History of Jazz</td>
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<td>History of Modern Philosophy</td>
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<td>Phil 350</td>
<td>Philosophy of Science</td>
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<td>Phil 365</td>
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<td>Span 315</td>
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<td>Introduction to Literary Criticism</td>
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<td>Women Writers</td>
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Tier II Arts and Humanities or Intercultural Studies (G)

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<td>Foundations of Islamic Civilization</td>
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<td>Asia 314</td>
<td>Philosophy and Religion of India</td>
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<td>Asia 315</td>
<td>Philosophy and Religion of China and Japan</td>
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<td>Asia 370</td>
<td>Civilization of Classical India</td>
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<td>Chinese Civilization</td>
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<td>CAC 151</td>
<td>Introduction to Chicano Studies</td>
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<td>CAC 171</td>
<td>Introduction to Native American Studies</td>
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<td>CAC 271</td>
<td>Native Music of North America</td>
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<td>Asian American Literatures</td>
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<td>Introduction to African American Literature</td>
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<td>Engl 311</td>
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<td>Engl 341</td>
<td>Native American Literature</td>
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<td>Engl 345</td>
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<td>Civilization of Classical India</td>
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<td>Mus 163</td>
<td>World Music</td>
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<td>Mus 265</td>
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<tr>
<td>Mus 363</td>
<td>Women of Note</td>
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<tr>
<td>Phil 314</td>
<td>Philosophies and Religions of India</td>
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<td>Philosophies and Religions of China and Japan</td>
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<td>Contemporary Russian Culture and Society</td>
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<td>Span 316</td>
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Tier III Arts and Humanities (H)

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<td>Engl 409</td>
<td>Women Writers in the American West</td>
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<tr>
<td>Engl 415</td>
<td>Traditions of Comedy and Tragedy</td>
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<td>Engl 419</td>
<td>The Twentieth Century Novel</td>
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<td>Engl 471</td>
<td>Cultural Politics Since World War II</td>
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<td>FA 405</td>
<td>Contemporary Art: Theory and Practice</td>
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<td>The Renaissance</td>
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<td>Love in the Arts</td>
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<td>Phil 430</td>
<td>Philosophy of Art</td>
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<td>Rus 430</td>
<td>St. Petersburg</td>
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<tr>
<td>W St 409</td>
<td>Women Writers in the American West</td>
</tr>
</tbody>
</table>

SOCIAL SCIENCES

[S, K#] (3-6 hours)

Requirements in Social Sciences may be satisfied by courses (see below) with primary emphasis on the social, political, economic, and religious institutions of human society. These courses expose students to data used by the various disciplines to test, explain, or create the concepts, theories, principles, and laws underlying those institutions. These courses may focus upon how social scientists use these constructs to evaluate issues and how such knowledge enhances the understanding of human behavior within society’s institutions.

#(K) designates courses which meet GERs in either Social Sciences or Intercultural Studies.

Tier II Social Sciences (S)

<table>
<thead>
<tr>
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<td>Ag Ec 201</td>
<td>Economics in Agriculture</td>
</tr>
<tr>
<td>Ag Ec 320</td>
<td>American Agriculture and Rural Life</td>
</tr>
</tbody>
</table>
### Tier II Social Sciences [S] (continued)

| Anth 101 | General Anthropology |
| Anth 198 | Anthropology Honors |
| Anth 330 | Origins of Culture and Civilization |
| Anth 350 | Speech, Thought and Culture |

**CAC**

| 300 | Intersections of Race, Class and Gender |
| 335 | Civil Rights Movement in America |

**Com**

| 101 | Mass Communications and Society |

**Econ**

| 101 | Fundamentals of Microeconomics |
| 102 | Fundamentals of Macroeconomics |
| 198 | Economics Honors |

**For L**

| 350 | Speech, Thought and Culture |

**Ger**

| 317 | Contemporary German Culture and Society |

**H D**

| 101 | Human Development Across the Lifespan |
| 204 | Family Systems: Understanding Family Interaction |

**Hist**

| 110 | American History to 1877 |
| 111 | American History Since 1877 |
| 198 | History Honors |
| 298 | History of Women in American Society |
| 313 | Civil Rights Movement in America |
| 320 | American Agriculture and Rural Life |
| 350 | European Women's History, 1400-1800 |
| 380 | History of Medicine |
| 381 | Science in Western Civilization Through Newton |
| 382 | Science in Western Civilization from Newton to Einstein |

**PharP**

| 250 | The American Health Care System |

**Pol S**

| 101 | American National Government |
| 102 | Introduction to Comparative Politics |
| 103 | International Politics |
| 198 | Political Science Honors |
| 305 | Gender and Politics |
| 333 | Development of Marxist Thought |

**Psych**

| 105 | Introductory Psychology |
| 198 | Psychology Honors |
| 324 | Psychology of Women |
| 350 | Social Psychology |

**SCHS**

| 250 | Perspectives on Disability |

**Soc**

| 101 | Introduction to Sociology |
| 102 | Social Problems |
| 198 | Introduction to Sociology Honors |
| 300 | Intersections of Race, Class and Gender |
| 315 | Ecology of Human Societies |
| 331 | Population, Resources, and the Future |
| 340 | Social Inequality |
| 341 | Sociology of Religion |
| 342 | Political Sociology |
| 350 | Social Psychology |
| 351 | The Family |
| 360 | Theories of Deviance |
| 373 | Media, Culture, and Society |
| 374 | Collective Behavior and Social Movements |
| 384 | Sociology of Gender |

**W St**

| 200 | Introduction to Women Studies |
| 204 | Family Systems: Understanding Family Interactions |

**W St**

| 250 | The American Health Care System |
| 298 | History of Women in American Society |
| 300 | Intersections of Race, Class and Gender |
| 305 | Gender and Politics |
| 324 | Psychology of Women |
| 350 | European Women's History, 1400-1800 |
| 351 | The Family |
| 380 | History of Medicine |
| 384 | Sociology of Gender |

### Tier II Social Sciences or Intercultural Studies [K] (continued)

| Asia 270 | Introduction to South Asian Culture |
| Asia 275 | Introduction to East Asian Culture |

**CAC**

| 211 | Introduction to Asian American History |
| 212 | Peoples of the World |
| 217 | Introduction to East Asian Culture |
| 376 | America Before Columbus |
| 377 | Native Peoples of North America |

**Hist**

| 201 | Introduction to Asian American Studies |
| 230 | Latin America, The Colonial Period |
| 231 | Latin America, The National Period |
| 270 | Introduction to South Asian Culture |
| 275 | Introduction to East Asian Culture |
| 331 | Cultural History in Latin America |

**W St**

| 316 | Gender and Culture |
| 335 | Women in Latin American History |

### Tier III Social Sciences [S]

| Anth 468 | Sex, Evolution, and Human Nature |
| CAC 480 | Federal Native American Resource Settlement Models |
| Cpt S 401 | Computers and Society |
| Crm J 403 | Violence Toward Women |

**Econ**

| 418 | Global Capitalism Today: Perspectives and Issues |

**Hist**

| 409 | American Environmental History |
| 436 | Imperialism in the Modern World |
| 483 | Technology and Social Change to 1950 |

**Psych**

| 455 | Human Values |

**Soc**

| 415 | Ecology of Human Societies |
| 430 | Society and Technology |
| 435 | Human Values |
| 484 | Lesbian and Gay Studies |

**W St**

| 403 | Violence Toward Women |
| 484 | Lesbian and Gay Studies |

### Tier III Social Sciences or Intercultural Studies [K]

| Anth 404 | The Self in Culture |

**CAC**

| 439 | African Politics |

**Pol S**

| 474 | African Politics |

**W St**

| 460 | Gender, Race, and Nature in America |

### Intercultural Studies

[1, G*, K#] (3 hours)

Requirements in Intercultural Studies may be satisfied by courses (see below) which enlarge the student’s international perspective or increase the student’s sensitivity to cultural differences. These courses employ a variety of methodologies and focus on diverse subject matter, but should emphasize non-Western cultures or ethnic minorities studies. Such courses should foster an awareness of the diversity of human values and present a coherent view of the cultures studied.

In regard to substitutions by transfer students or students in approved study abroad programs, only equivalent, formal academic course work which focuses on the study of non-Western cultures or the experiences of American ethnic minorities may satisfy the Intercultural Studies requirement. That is, culture, non-Western culture, must be the formal subject of the academic course. Non-academic work, or academic work on other topics, foreign travel or life-experience abroad cannot qualify.

*G* designates courses which meet GER in either Arts and Humanities or Intercultural Studies.

*#K* designates courses which meet GER in either Social Sciences or Intercultural Studies.

### Tier II

| Anth 130 | Great Discoveries in Archaeology |
| Anth 201 | [G] Art and Society |
| Anth 203 | [K] Peoples of the World |
### Tier II Intercultural Studies [I,G,K] (continued)

<table>
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<tbody>
<tr>
<td>Anth 231</td>
<td>America Before Columbus</td>
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<tr>
<td>Anth 230</td>
<td>Contemporary Cultures and Peoples of Africa</td>
</tr>
<tr>
<td>Anth 309</td>
<td>Cultural Ecology</td>
</tr>
<tr>
<td>Anth 316</td>
<td>Gender and Culture</td>
</tr>
<tr>
<td>Anth 320</td>
<td>The Native Peoples of North America</td>
</tr>
<tr>
<td>Anth 351</td>
<td>America Before Columbus</td>
</tr>
<tr>
<td>Asia 270</td>
<td>Introduction to South Asian Culture</td>
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<tr>
<td>Asia 272</td>
<td>Introduction to Middle Eastern History</td>
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<td>Asia 273</td>
<td>Foundations of Islamic Civilization</td>
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<td>Chinese Civilization</td>
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<td>Introduction to Asian/Pacific American Studies</td>
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<td>Introduction to Black Studies</td>
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<td>Introduction to Chicano Studies</td>
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<td>CAC 171</td>
<td>Introduction to Native American Studies</td>
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<td>Introduction to Asian American History</td>
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<td>Peoples of the World</td>
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<td>CAC 217</td>
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<td>CAC 227</td>
<td>Introduction to African Studies</td>
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<td>Native Music of North America</td>
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<td>CAC 313</td>
<td>Asian American Literatures</td>
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<td>CAC 331</td>
<td>Introduction to African American Literature</td>
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<tr>
<td>CAC 350</td>
<td>Black Politics</td>
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<tr>
<td>CAC 353</td>
<td>Introduction to Chicano/Chicana Literature</td>
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<td>CAC 375</td>
<td>Native American Literature</td>
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<td>America Before Columbus</td>
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<tr>
<td>CAC 377</td>
<td>The Native Peoples of North America</td>
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### Tier III Intercultural Studies [I,G,K]

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<tbody>
<tr>
<td>Anth 404</td>
<td>The Self in Culture</td>
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<tr>
<td>Asia 470</td>
<td>Gandhi: India and the United States</td>
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<tr>
<td>CAC 405</td>
<td>Cultural Criticism and Theory</td>
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<td>CAC 439</td>
<td>African Politics</td>
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<td>Engl 410</td>
<td>Cultural Criticism and Theory</td>
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<tr>
<td>Hist 425</td>
<td>The City in History</td>
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<tr>
<td>Hist 470</td>
<td>Gandhi: India and the United States</td>
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<td>PolS 474</td>
<td>African Politics</td>
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<td>Soc 430</td>
<td>Society and Technology</td>
</tr>
<tr>
<td>W St 460</td>
<td>Gender, Race, and Nature in America</td>
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</tbody>
</table>

### SCIENTES

(Q*, B, P) (10 hours)

Requirements in Sciences may be satisfied by courses (see below) which acquaint the student with the basic physical and/or biological principles of the world. The student should gain an understanding of the scientific method, including experimentation and data interpretation involving biological, mathematical, and/or physical systems. The curriculum is designed to enable the student to understand scientific developments and to evaluate as an informed lay person the significance of those developments and their association with other areas of human endeavor. Laboratory experience satisfying the laboratory credit requirement should focus on the interplay among hypothesis, observation, experiment, theory, and understanding.

(L) designates courses which include laboratory work.

*Q* designates Tier I science courses.
## B BIOLOGICAL SCIENCES

### Tier II (continued)

<table>
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<td>SoilS</td>
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## P PHYSICAL SCIENCES

### Tier II

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### Tier III

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The General Education Program
The Areas of Coherence

Five courses (i.e., 15 hours) of the General Education distribution requirements listed above must be taken within one of the clusters of courses listed below. The Area of Coherence is a way of organizing choices within the General Education curriculum. All three tiers must be represented in the course selections within the Area of Coherence; only 3 hours can be at Tier I. The Tier III course functions as the capstone of the student’s Area of Coherence. Students may take Tier III courses only after completion of the required Tier I and II courses within the selected Area of Coherence and after earning approximately 60 hours. Tier III courses are upper-division graduation requirements not fulfilled by AA or AS degrees. GER courses, including capstone courses, may not be taken within a student’s own major.

Note: Crosslisted courses appear in italics.

1. Foundations of Western Civilization

This area of concentration examines the distinctive cultural forms and historical developments of early Western civilization to approximately A.D. 1500. Courses explore the political, economic, and social developments within early Western civilization; the sources of its culture and influences upon it; its interactions with other peoples and cultures; its history, art, philosophy, religious thought and practices; its literatures and languages.

Students will be expected to understand and integrate an extensive body of knowledge on the above topics, and, in Tier III, to analyze a significant set of issues or expressions of early Western civilization and to place them in context.

Tier I
GenEd 110 [A] World Civilizations I

Tier II
Anth 130 [I] Great Discoveries in Archaeology
Anth 330 [S] Origins of Culture and Civilization
Arch 220 [H] Architectural History I
Drama 160 [H] Introduction to Theatre
Drama 365 [H] Theatre History to 1700
Engl 209 [H] Readings in Literature Through the 18th Century
Engl 335 [H] The Bible as Literature
FA 101 [H] Introduction to Art
Fren 315 [H] Germanic Civilization
Fren 320 [H] Introduction to German Literature
Fren 322 [H] The German Novelle
Ger 315 [H] Germanic Civilization
Hist 101 [H] Classical and Christian Europe
Hist 340 [H] Ancient Greece
Hist 341 [H] Rome: Republic and Empire
Hist 342 [S] History of England to 1485
Hist 381 [S] Science in Western Civilization to Newton
Hum 101 [H] Humanities in the Ancient World
Hum 103 [H] Mythology
Hum 202 [H] Middle Ages and Renaissance
Hum 335 [H] The Bible as Literature
Mus 153 [H] Musical Style in Composition
Mus 160 [H] Survey of Music Literature
Phi 101 [H] Introduction to Philosophy
Phi 201 [H] Elementary Logic
Phi 207 [H] Philosophy of Religion
Phi 290 [H] History of Ancient and Medieval Philosophy

Tier III
Hist 444 [H] The Renaissance

2. Foundations of the Modern World

This area of concentration examines the variety of cultural forms, issues, and historical developments which characterize modern culture since its emergence around A.D. 1500. Course work examines the scientific and industrial revolutions and their impacts upon modern cultures; the role of Western civilization in these events and its subsequent interactions with other cultures; colonialism and imperialism; the roles of class, gender, and ethnicity in modern society; the history, art, thought, and social and political developments of the world since approximately A.D. 1500. Students are expected to understand the modern world as a global economic and political system and to analyze modern culture in a variety of forms.

Tier I
GenEd 111 [A] World Civilizations II
Zool 150 [Q] Evolution

Tier II
Asia 270 [G] Introduction to South Asian Culture
Asia 272 [H] Introduction to Middle Eastern Culture
Asia 275 [K] Introduction to East Asian Culture
Asia 373 [G] Chinese Civilization
CAC 101 [I] Introduction to Comparative American Cultures
CAC 111 [I] Introduction to Asian/Pacific American Studies
CAC 131 [I] Introduction to African American Studies
CAC 151 [G] Introduction to Chicano Studies
CAC 171 [G] Introduction to Native American Studies
CAC 227 [I] Introduction to African Studies
CAC 235 [I] African American History

Com 101 [S] Mass Communication and Society
Drama 160 [H] Introduction to Theatre
Drama 366 [H] Theatre History, 1700-1900
Econ 102 [S] Fundamentals of Macroeconomics
Engl 209 [H] Readings in Literature through the 18th Century
Engl 210 [H] Readings in Literature since the 18th Century
Engl 216 [H] Main Currents in American Culture
Engl 261 [H] Literary Masterpieces
Engl 305 [H] Shakespeare
Engl 306 [H] Shakespeare
Engl 366 [H] English Novel to 1900
Engl 368 [H] American Novel to 1900
FA 202 [H] World Art History
FA 303 [H] Modern Art—19th Century
FA 304 [H] Modern Art—20th Century
Fren 315 [H] French Civilization and Culture
Fren 320 [H] Survey of French Literature to 1700
Fren 322 [H] Survey of French Literature after 1700
Ger 317 [S] Contemporary German Culture and Society
Hist 102 [H] Modern Europe
Hist 110 [S] American History to 1877
Hist 111 [S] American History since 1877
Hist 205 [I] African American History
Hist 216 [H] Main Currents in American History
Hist 230 [K] Latin America: The Colonial Period
Hist 231 [K] Latin America: The National Period
Hist 270 [G] Introduction to South Asian Culture
Hist 272 [H] Introduction to Middle Eastern Culture
Hist 275 [K] Introduction to East Asian Culture
Hist 331 [K] Cultural History of Latin America
Hist 343 [H] History of England since 1485
Hist 350 [S] European Women’s History, 1400-1800
Hist 373 [G] Chinese Civilization
Hist 382 [S] Science in Western Civilization since Newton
Hum 303 [H] Reason, Romanticism, and Revolution
Hum 304 [H] Humanities in the Modern World
Hum 340 [H] American Foundings
### 2. Foundations of the Modern World

#### Tier II (continued)

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<td>W St</td>
<td>History of Women in American Society</td>
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### 3. American Cultures

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<td>Engl 321</td>
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### 4. The Nature of Humanity

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#### Tier II

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4. The Nature of Humanity  

**Tier II (continued)**

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<td>Bio S 201 [B]</td>
<td>Contemporary Biology</td>
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<td>Engl 309 [H]</td>
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<td>American Foundings</td>
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<td>W St 200 [S]</td>
<td>Introduction to Women Studies</td>
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<td>W St 204 [S]</td>
<td>Family Systems: Understanding Family Interaction</td>
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5. Structure of Society  

This area of study focuses on the nature and functions of institutions, their origins and growth, and their influence on society. Course work focuses on societies, past and present, with an emphasis on institutional structures, including familial, cultural, political, and economic systems. Individual courses may be comparative in approach or explore a single social system in depth.

Students will study a variety of institutional systems and explore their characteristics, functions, and significance, with the aim of understanding how social groups function at many levels.
### 5. Structure of Society

**Tier II (continued)**

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<td>Media, Culture, and Society</td>
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<td>Collective Behavior and Social Move</td>
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**Tier III**

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<td>Introduction to Women Studies</td>
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<tr>
<td>W St 204</td>
<td>Family Systems: Understanding Family Interactions</td>
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<td>W St 235</td>
<td>African American History</td>
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<td>W St 250</td>
<td>The American Health Care Systems</td>
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<td>W St 298</td>
<td>History of Women in American Society</td>
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<tr>
<td>W St 300</td>
<td>Intersections of Race, Class, and Gender</td>
</tr>
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<td>W St 305</td>
<td>Gender and Politics</td>
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<td>Gender and Culture</td>
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<td>Sociology of the Family</td>
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**Tier III**

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### 6. Forms of Artistic Expression

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<tr>
<td>Engl 345</td>
<td>Introduction to Chicano/Chicana Literature</td>
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<tr>
<td>Engl 341</td>
<td>Native American Literature</td>
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<td>Engl 345</td>
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### Tier III

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### 7. Human Values and Religious Thought

**Tier I**

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<td>F A 301</td>
<td>The Art of Africa, Native America, and the Pacific</td>
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<td>F A 302</td>
<td>Arts of Asia</td>
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<td>F A 303</td>
<td>Modern Art—19th Century</td>
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<td>Modern Art—20th Century</td>
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<td>Fren 320</td>
<td>Survey of French Literature to 1700</td>
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<td>Fren 322</td>
<td>Survey of French Literature After 1700</td>
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<td>Hum 101</td>
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<td>Hum 103</td>
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<td>Hum 202</td>
<td>Middle Ages and Renaissance</td>
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<td>Hum 303</td>
<td>Reason, Romanticism, and Revolution</td>
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<td>Masterpieces of Russian Literature in Translation</td>
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**Tier III**

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<td>Love in the Arts</td>
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### Tier I

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<td>The Built Environment</td>
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<td>CAC 313</td>
<td>Introduction to Asian American Literature</td>
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<td>Introduction to Literary Criticism</td>
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<td>Women Writers</td>
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<td>Introduction to Asian American Literature</td>
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<td>Introduction to African American Literature</td>
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<td>Introduction to Chicano/Chicana Literature</td>
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<td>The Bible as Literature</td>
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<td>Asia 270</td>
<td>Introduction to South Asian Culture</td>
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<td>Asia 273</td>
<td>Foundations of Islamic Civilization</td>
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<td>Asia 275</td>
<td>Introduction to East Asian Culture</td>
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<td>Asia 314</td>
<td>Philosophies and Religions of India</td>
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<td>Philosophies and Religions of China and Japan</td>
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<td>Peoples of the World</td>
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7. Human Values and Religious Thought

Tier II (continued)

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<td>Philosophy of Religion</td>
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<td>Phil 260 [H]</td>
<td>Introduction to Ethics</td>
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<td>Phil 290 [H]</td>
<td>History of Ancient and Medieval Philosophy</td>
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Tier III

Asia 470 [I] Gandhi: India and the United States

Hist 470 [I] Gandhi: India and the United States

8. Global Perspectives

This area of coherence aims at increasing students' international awareness and knowledge of major world geographical and cultural area beyond the United States. It also addresses many transnational processes and global issues affecting all world regions and cultures. Courses included in this area examine a variety of world cultures, religions, historical developments, socio-economic and political systems, and transnational or global issues (e.g., technological change, global environmental or economic issues, population, demographics, gender, hunger, health, human rights).

Through study of these global perspectives, students are expected to become more knowledgeable of, and sensitive to, our multicultural and increasingly interdependent world. Students are expected to analyze global issues and broad cultural and international problems from a number of perspectives.

Tier I

ES/RP 150 [Q] Science and the Environment

GenEd 110 [A] World Civilizations I

GenEd 111 [A] World Civilizations II

Tier II

Ag Ec 201 [S] Economics in Agriculture

Anth 101 [S] Introduction to Anthropology

Anth 201 [G] Art and Society

Anth 203 [K] Peoples of the World

Anth 231 [K] America Before Columbus

Anth 307 [K] Contemporary Cultures and Peoples of Africa

Anth 309 [K] Cultural Ecology

Anth 316 [K] Gender and Culture

Anth 320 [K] Native Peoples of North America

Anth 350 [K] Speech, Thought, and Culture

Asia 270 [G] Introduction to South Asian Culture

Asia 272 [I] Introduction to Middle Eastern Culture

Asia 273 [G] Foundations of Islamic Civilization

Asia 275 [K] Introduction to East Asian Culture

Asia 314 [G] Philosophies and Religions of India

Asia 315 [G] Philosophies and Religions of China and Japan

CAC 212 [K] Peoples of the World

CAC 227 [I] Introduction African Studies

CAC 276 [S] America Before Columbus

CAC 377 [K] Native Peoples of North America

CropS 360 [I] World Agricultural Systems

Drama 145 [G] Contemporary World Theatre

Econ 101 [S] Fundamentals of Microeconomics

Econ 102 [S] Fundamentals of Macroeconomics

9. Ecology of the Planet

Ecology is the study of living systems and their interactions with the environment, including human interactions with those systems. This area of study encompasses those systems and their interactions, together with enquiries into the scientific principles involved in current ecological problems and issues. Courses included in this area address such topics as evolutionary theory; the nature, functional properties, and current conditions of the ecosphere; the underlying physical and biological principles and the transformations of matter and energy involved in natural systems; and human interactions with these natural systems.

Students are expected to acquire an understanding of the natural systems of the planet—geological forces, climatic variation, evolutionary changes, biomes, etc.—and to understand how they interact with each other. Students should be able to depict these phenomena and their interactions in some detail. Students will study human dependence on
The Areas of Coherence

9. Ecology of the Planet
(continued)

these planetary natural systems and understand human impacts on them, both positive and negative, and be able to discern the implications of those impacts for human and planetary health.

**Tier I**

- **Chem** 150 [Q] Molecules and Science
- **ES/RP** 150 [Q] Science and the Environment
- **Phys** 150 [Q] Physics and Your World
- **Zool** 150 [Q] Evolution

**Tier II**

- **Ag Ec** 201 [S] Economics in Agriculture
- **Ag Ec** 320 [S] American Agriculture and Rural Life
- **Anth** 203 [K] Peoples of the World
- **Anth** 309 [K] Cultural Ecology
- **Arch** 202 [H] The Built Environment
- **Bio S** 101 [B] Directions in Biological Sciences
- **Bio S** 102 [B] General Biology
- **Bio S** 103 [B] Introductory Biology
- **Bio S** 210 [B] Contemporary Biology
- **Bio S** 210 [B] Genetics and Society
- **Bot** 120 [B] Introduction to Botany
- **CAC** 212 [K] Peoples of the World
- **Chem** 101 [P] Introduction to Chemistry
- **Chem** 102 [P] Chemistry Related to Life Sciences
- **Chem** 105 [P] Principles of Chemistry I
- **Chem** 106 [P] Principles of Chemistry II
- **CropS** 360 [I] World Agricultural Systems
- **Entom** 101 [B] Insects and People
- **ES/RP** 101 [B] Environment and Human Life
- **ES/RP** 303 [B] Conservation of Renewable Resources
- **ES/RP** 370 [H] Environmental Ethics
- **FSHN** 130 [B] Nutrition for Living
- **GenCB** 210 [B] Genetics and Society
- **Geol** 101 [P] Introduction to Geology
- **Geol** 102 [P] Physical Geology
- **Geol** 180 [P] Honors Geology
- **Geol** 210 [P] Evolution and Earth
- **Geol** 323 [P] Geology of the Pacific Northwest
- **Hist** 320 [S] American Agriculture and Rural Life
- **I D** 202 [H] The Built Environment
- **LA** 202 [H] The Built Environment
- **Micro** 101 [B] Introduction to Microbiology
- **NATRS** 303 [B] Conservation of Renewable Resources
- **Phil** 370 [H] Environmental Ethics
- **Phys** 101 [P] General Physics
- **Phys** 102 [P] General Physics
- **Soc** 315 [S] Ecology of Human Societies
- **Soc** 331 [S] Population, Resources, and the Future
- **SoilS** 201 [B] Growth and Development of World Crop Plants
- **SoilS** 360 [I] World Agricultural Systems
- **Zool** 135 [B] Animal Natural History
- **Zool** 330 [B] Principles of Conservation

**Tier III**

- **Am St** 472 [T] Ecological Issues and American Nature Writing

**Tier III (continued)**

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<tr>
<td>Soc 415 [S]</td>
<td>Ecology of Human Societies</td>
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</table>

10. The Nature of Matter and Energy

This area of study examines the nature of the universe and its development from its origins to the present. It encourages exploration of the natural world from several different scientific and scholarly perspectives. Courses in this area will explore the basic scientific principles of physics and chemistry; the basic biological sciences; theories of the development and nature of the universe; the history of planet Earth and the solar system; and the history of human knowledge of these subjects.

Students are expected to acquire an understanding of the structure of matter and the principles governing the transformations of matter and energy that constitute the natural world. In addition, they will become familiar with the ways in which human understanding of the natural world has developed over time.

**Tier I**

- **Chem** 150 [Q] Molecules and Science
- **Geol** 150 [Q] Conflict and Debate in Geological Sciences
- **GenEd** 111 [A] World Civilizations II

**Tier II**

- **Astr** 250 [P] Descriptive Astronomy
- **Bio S** 101 [B] Directions in Biological Sciences
- **Bio S** 102 [B] General Biology
- **Bio S** 103 [B] Introductory Biology
- **Bio S** 104 [B] Introductory Biology
- **Bot** 120 [B] Introduction to Botany
- **Chem** 101 [P] Introduction to Chemistry
- **Chem** 102 [P] Chemistry Related to Life Sciences
- **Chem** 105 [P] Principles of Chemistry I
- **Chem** 106 [P] Principles of Chemistry II
- **Geol** 101 [P] Introduction to Geology
- **Geol** 102 [P] Physical Geology
- **Geol** 180 [P] Honors Geology
- **Geol** 210 [P] Evolution and Earth
- **Geol** 323 [P] Geology of the Pacific Northwest
- **Hist** 381 [S] Science in Western Civilization through Newton
- **Hist** 382 [S] Science in Western Civilization since Newton
- **Micro** 101 [B] Introduction to Microbiology
- **Phil** 305 [H] History of Modern Philosophy
- **Phil** 310 [H] Nineteenth-century Philosophy
- **Phil** 350 [H] Philosophy of Science

**Tier III**

- **Astr** 450 [P] The Search for Extraterrestrial Life
11. Science and Society

This area of study explores the interrelationships between society and science and technology in the modern world, including the transformation of civilization as the result of scientific and technological advances. The focus of the area includes both the cultural environment of scientific and technological change and the impacts of science and technology on culture itself. Course work in this area includes a foundation of basic science, the history and philosophy of science, ethics, and the social and economic developments of the modern world with a special emphasis on the role of institutions and interest groups in modern society.

Students will be expected to acquire a basic knowledge of the most significant technological/scientific developments which have transformed the world since the European Renaissance and to have some understanding of the ways in which societies and institutions, as well as resource and other constraints, impact and shape technological development. Students are expected to analyze the technical components of complex social and economic changes and to understand the ethical implications of such changes.

Tier I

- Chem 150 [Q] Molecules and Science
- ES/RP 150 [Q] Science and the Environment
- GenEd 111 [A] World Civilizations II
- Phys 150 [Q] Physics and Your World
- Zool 150 [Q] Evolution

Tier II

- AgEc 201 [S] Economics in Agriculture
- Aging 130 [B] Nutrition for Living
- Arch 202 [H] The Built Environment
- BioS 101 [B] Directions in Biological Sciences
- BioS 102 [B] General Biology
- BioS 103 [B] Introductory Biology
- BioS 104 [B] Introductory Biology
- BioS 201 [B] Contemporary Biology
- BioS 210 [B] Genetics and Society
- Chem 101 [P] Introduction to Chemistry
- Chem 102 [P] Chemistry Related to Life Sciences
- Chem 105 [P] Principles of Chemistry
- Econ 102 [S] Fundamentals of Macroeconomics
- ES/RP 101 [B] Environment and Human Life
- ES/RP 370 [H] Environmental Ethics
- Entom 101 [B] Insects and People
- FSHN 130 [B] Nutrition for Living
- GenCB 210 [B] Genetics and Society
- Geol 180 [P] Honors Geology
- Hist 380 [S] History of Medicine
- Hist 381 [S] Science in Western Civilization through Newton
- Hist 382 [S] Science in Western Civilization since Newton
- LA 202 [H] The Built Environment
- Micro 101 [B] Introduction to Microbiology
- PharP 250 [S] The American Health Care System
- Phil 305 [H] History of Modern Philosophy
- Phil 350 [H] Philosophy of Science
- Phil 365 [H] Biomedical Ethics
- Phil 370 [H] Environmental Ethics
- Phys 101 [P] General Physics
- Phys 102 [P] General Physics
- Phys 201 [P] Physics for Scientists and Engineers I
- Phys 202 [P] Physics for Scientists and Engineers II
- Phys 205 [P] Physics for Scientists and Engineers I - Honors
- Phys 206 [P] Physics for Scientists and Engineers II - Honors
- Phys 380 [P] Physics and Society
- Psych 105 [S] Introductory Psychology
- Soc 101 [S] Introduction to Sociology
- Soc 102 [S] Social Problems
- Soc 315 [S] Ecology of Human Societies
- SoilS 360 [I] World Agricultural Systems
- W/St 250 [S] The American Health Care System
- W/St 380 [S] History of Medicine
- Zool 330 [B] Principles of Conservation

Tier III

- CptS 401 [S] Computers and Society
- Hist 483 [S] Technology and Social Change to 1950
- Soc 430 [S] Society and Technology

12. Measures of the World

This area of concentration deals with the philosophical, societal, and practical issues involved with humanity’s attempts to measure the cultural and physical world; both the scientific and cultural aspects of attempts to understand the world constitute the focus of study Courses in this area address significant aspects of measurement processes and milestones in the development of ways of understanding the world—e.g., the history and sociology of mathematics and science, of economic thought, psychology, and the other social sciences, and the alternative statistical approaches to analysis.

Students completing this area will be able to understand and analyze the developmental history, the philosophical issues, and the current status of measurement practices.

Tier I

- Chem 150 [Q] Molecules and Science
- ES/RP 150 [Q] Science and the Environment
- Geol 150 [Q] Conflict and Debate in Geological Sciences
- Math 140 [N] Mathematics for Life Scientists
- Math 171 [N] Calculus I
- Math 202 [N] Introduction to Mathematical Analysis
- Math 205 [N] Statistical Thinking
- Math 206 [N] Mathematical Analysis for Architects
- Math 210 [N] Introduction to Mathematics
- Math 212 [N] Introduction to Statistical Methods
- Math 222 [N] Prestatistics Mathematics for Social Scientists
- Phys 101 [P] General Physics
- Stat 205 [N] Statistical Thinking
- Stat 212 [N] Introduction to Statistical Methods
- Zool 150 [Q] Evolution

Tier II

- AgEc 201 [S] Economics in Agriculture
- Anth 101 [S] Introduction to Anthropology
- Astr 250 [P] Descriptive Astronomy
- BioS 101 [B] Directions in Biological Sciences
- BioS 102 [B] General Biology
- BioS 103 [B] Introductory Biology
- BioS 104 [B] Introductory Biology

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The Areas of Coherence

12. Measures of the World
Tier II (continued)

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<td>210 [B]</td>
<td>Genetics and Society</td>
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<td>Chem</td>
<td>101 [P]</td>
<td>Introduction to Chemistry</td>
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<td>Chem</td>
<td>102 [P]</td>
<td>Chemistry Related to Life Sciences</td>
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<td>105 [P]</td>
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<td>106 [P]</td>
<td>Principles of Chemistry II</td>
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<td>Geol</td>
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<td>102 [P]</td>
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<td>180 [P]</td>
<td>Honors Geology</td>
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<td>Science in Western Civilization through Newton</td>
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<tr>
<td>W St</td>
<td>324 [S]</td>
<td>Psychology of Women</td>
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</table>

Tier III

Note: Tier III capstone courses for this Area of Coherence will be developed over the next biennium.
The Department of Aerospace Studies (Air Force ROTC) offers eligible students education and training which lead to commissions as second lieutenants in the U.S. Air Force. Air Force ROTC students may major in any degree program offered at Washington State University. They supplement their major curriculum with the specialized aerospace studies courses in order to prepare for active commissioned service.

Students may participate in either the four-year or two-year program. The four-year student completes the General Military Course (two years), four-week summer training (Aero 291), and the Professional Officer Course (two years). The two-year student attends a special six-week summer field training (Aero 292) and then completes the Professional Officer Course. The two-year program is designed for any student having two years left in the university, but who has no previous AFROTC or military service.

General Military Course (GMC). This sequence of courses consists of four 2-credit courses normally taken during the freshman and sophomore years. The GMC sequence prepares the student for field training and the Profession Officer Course, and forms the basis for the four-year program. The sequence may be adapted to fit individual schedules.

Professional Officer Course (POC). This sequence, beginning with Aero 311, consists of four 4-credit courses normally taken during the student’s last two years in the university. Entry into the POC is competitive. Four-year students compete for entry during their last year in the GMC. Other students interested in the two-year program should begin application by the end of the fall semester before they plan to enter the POC. Four- and two-year students selected for entry will be scheduled to attend Aero 291 or 292 during the summer before enrolling in Aero 311.

Financial Aid and Scholarships. Air Force ROTC offers enrolled GMC students the opportunity to compete for three-and-one-half-, three-, two-and-one-half-, and two-year scholarships which pay tuition, fees, and a semester book allowance, as well as a $150 per month stipend during fall and spring semesters. Two-year program applicants can compete for a two-year scholarship. All Air Force ROTC students regularly enrolled in the POC receive the $150 per month stipend.

A minor in aerospace studies requires at least 16 hours, half of which must be 300-400-level, from: Aero 101, 102, 201, 202, 311, 312, 411, 412.

**Program in Aging**

Chair, J.D. Teachman.

The Program in Aging offers an interdisciplinary curriculum in gerontology, including courses in the social and health sciences. The program is designed to achieve the following objectives:

1. To provide a body of knowledge which individuals may use in better understanding the processes and implications of aging in their own lives and for participation in community decision making regarding the scope, structure, and nature of programs for the elderly.
2. To enhance the qualifications of students in the helping services, health sciences, communication, education, and business, who are planning careers which involve working with or providing services to older persons.
3. To prepare students for graduate and professional training in gerontology;
4. To further university and societal goals of equity for persons of all ages.

The program offers a minor in aging. The minor requires a minimum of 18 hours of credit including H D 203 or 305; FSHN 130; Psych/Aging 363; Soc 356 or S W/Aging 396, and approved aging-related courses (6 hours) to be selected from a list of recommended courses available from the program chair. Students must obtain approval of their course selection from the program chair. To register for the Program in Aging, students need to contact the program chair, J.D. Teachman (509) 335-9540. A certificate in aging is granted to students who complete the minor in aging and an internship experience. The internship with a focus on aging must be completed either in human development or alcohol studies and may require additional prerequisites. All internships must be approved by the chair of the program prior to their initiation.

**Description of Courses**

Aging

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>305</td>
<td>Gerontology</td>
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<tr>
<td>363</td>
<td>Psychology of Aging</td>
</tr>
<tr>
<td>396</td>
<td>Social Work with the Aging</td>
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412 National Security Affairs/Preparation for Active Duty

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>412</td>
<td>National Security Affairs</td>
</tr>
</tbody>
</table>
Program in Agricultural Economics

The department offers programs leading to the degrees of Bachelor of Science in Agricultural Economics, Bachelor of Science in Agricultural Economics, Master of Arts in Agribusiness, Master of Arts in Agricultural Economics, and Doctor of Philosophy (Agricultural Economics).

Bachelor’s Program

The undergraduate programs are designed to provide the basic knowledge and tools necessary to secure professional positions in agriculture and agribusiness. The various curricula are structured to lead to different professional careers. Agricultural economics deals with economic issues related to food and fiber supply and demand and the natural resource base that supports agricultural production and other needs of society. Applications to public decision making and private decisions of farms, ranches and agribusinesses are considered. Agribusiness deals more specifically with the business management activities of firms which move agricultural products to final consumers and provide production inputs, such as fertilizer and money, to farms and ranches.

In agricultural economics, students learn to use economic concepts along with technical production information to solve problems of farms, ranches, and related organizations. They also obtain knowledge and skills relevant to solving broader economic and social problems facing production agriculture and society in general.

In agribusiness, students learn to use economic and business concepts and management tools to effectively function in firms and organizations that comprise the agribusiness sector. Knowledge and skills in management, marketing, and finance are developed with emphasis on the specialized requirements of the agribusiness community.

Major fields of emphasis and courses leading to degrees in agribusiness and agricultural economics include farm and ranch management, agribusiness management, agricultural marketing, resource economics, economic development, agricultural policy, and quantitative methods.

Students majoring in agricultural economics may emphasize one or more of the fields within agricultural economics, or may obtain a general background in agricultural economics. Students majoring in agribusiness emphasize agricultural economics courses in agribusiness, marketing and prices, finance, and other courses which provide a background for an understanding of production agriculture. Agribusiness majors comprehend their courses in agricultural economics with business and accounting courses.

A wide variety of courses is available to non-majors who want to take selected courses to support their programs in other departments. Students from other departments may declare a minor in agricultural economics or agribusiness.

Degree Program Requirements

The following schedules set forth the general requirements for the two Bachelor of Science degrees: Bachelor of Science in Agricultural Economics and Bachelor of Science in Agribusiness. Under the agricultural economics degree there are two options: agricultural production and resource management, and food and resource economics. General Education Requirements are met in the department requirements listed for all curricula. Students should consult their advisors for the appropriate sequencing of courses as well as for the selection of electives that best suit their needs and interests. Illustrative programs are available from the department.

At least 40 of the total hours required for the bachelor’s degree in these programs must be in 300-400-level courses.

AGRICULTURAL ECONOMICS DEGREE PROGRAM

FIRST YEAR REQUIREMENTS

The first year requirements are common to all agricultural economics and agribusiness degree programs:

**Freshman Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
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<tr>
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<tr>
<td>Econ 102 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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</tr>
<tr>
<td>Tier I Science [Q] (GER)³</td>
<td>3 or 4</td>
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<td>Second Semester</td>
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<tr>
<td>Acctg 230</td>
<td>3</td>
</tr>
<tr>
<td>Ag Ec 210</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)¹</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>SpCom 102 [C], 235 [C], 302 [C], or 324 [C] (GER)</td>
<td>3</td>
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</table>

¹ All three science GER courses must total 10 credits.
² Excluding Ag Ec courses.
³ Co-requisite for agricultural economics.

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course</th>
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<td>Acctg 231</td>
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<tr>
<td>Ag Ec 340</td>
<td>3</td>
</tr>
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<td>Arts &amp; Humanities [H, G] (GER)</td>
<td>3</td>
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<tr>
<td>Intercultural [I, G, K] (GER)</td>
<td>3</td>
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<tr>
<td>Physical Sciences (GER)⁴</td>
<td>3 or 4</td>
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<td>Second Semester</td>
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</tr>
<tr>
<td>Ag Ec 335 or B Law 210</td>
<td>3</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>6</td>
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<tr>
<td>Dec S 215 or Stat 212 [N] (GER)</td>
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<td>Math 201</td>
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**Junior Year**

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<td>Ag Ec 370</td>
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<td>Communication Skills Elective</td>
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<tr>
<td>Math 202 [N] (GER)</td>
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</tr>
<tr>
<td>Mgt 301</td>
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<td>Mktd 360</td>
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<td>Ag Ec 360</td>
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**Senior Year**

<table>
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<td>Ag Ec 430</td>
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<td>Ag Ec 460 [M]</td>
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<td>Econ 320</td>
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<td>Ag Ec 410, 411, or Dec S 340</td>
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<td>Engl 402 [W] (GER)</td>
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<td>Tier III Capstone (GER)</td>
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<tr>
<td>Elective³</td>
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</table>

**AGRICULTURAL PRODUCTION AND RESOURCE MANAGEMENT DEGREE PROGRAM (120 HOURS)**

This option is designed for the student who wants to obtain a broad background, with emphasis on the application of economics to agriculture. Of the three curricula, this offers the greatest flexibility and, as a result, a wide variety of programs of study can be developed to meet the specific interest of the student.
## DEGREE PROGRAM (120 HOURS)  

<table>
<thead>
<tr>
<th>Year</th>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Engl 402 [W] (GER)</td>
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<td>Second Semester</td>
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<td>Ag Ec 311, 340, 350, 360, or 370</td>
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<td>Two Of: Ag Ec 335, 420, 453, 490 [M]; B Law 210; ES/RP 335; NATRS 312</td>
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<td>300-400-level Ag Ec Elective</td>
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</tr>
</tbody>
</table>

1 All three science GER courses must total 10 credits.
2 Excluding Ag Ec courses.

### FOOD AND RESOURCE ECONOMICS DEGREE PROGRAM (120 HOURS)  

This option permits in-depth study into management and decision-making tools, while retaining the flexibility to permit an integrated complement of courses to fulfill an individual student’s needs. It provides good farm and ranch management preparation. Students may take agribusiness courses under this option but are encouraged to pursue a Bachelor of Science in Agribusiness if they seek specialized training in that area.

### Transfer Students

Students planning to transfer to Washington State University from other institutions should take courses which will meet the 100- and 200-level course requirements in accounting, economics, English, speech, and General Education Requirements in the natural and social sciences. All students planning to major in agribusiness or agricultural economics are encouraged to take intermediate algebra prior to entering Washington State University.

### Preparation for Graduate Study

Students who plan to do work in agricultural economics beyond the bachelor’s degree should consult their advisors as early as possible to develop study programs directed toward their goals.

### Description of Courses

#### Agricultural Economics

- **Ag Ec 201** [S] Economics in Agriculture 3 General introduction to economics appropriate for production, consumption and ecological issues in the agricultural and rural sector of the economy.

- **210 Management Applications of Microcomputers in Agriculture and Home Economics** 3 (1-6) Microcomputer systems and software including database management, graphics, spreadsheets, and word processing.

- **311 Natural Resource Economics** 3 Rec Ag Ec 201 or Econ 101. The role of economics in natural resource management and policy.

- **320 [S] [M] American Agriculture and Rural Life** 3 History and economic structure of American agriculture, land settlement, organizational nature of firms, technology, and patterns in rural life.

- **335 Legal Problems of Agriculture** 3 An introduction to the nature and extent of common legal problems confronting Washington farmers and ranchers.

- **340 Introduction to Farm and Ranch Management** 3 Rec Ag Ec 201 or Econ 101. Appraisal, organization, and management of related types of farms and ranches.

- **350 Introduction to Agricultural Marketing** 3 Rec Ag Ec 201 or Econ 101. Problems of marketing farm products; functions and institutions surrounding market operations.

- **360 Introduction to Agribusiness Management** 3 Rec Ag Ec 201 or Econ 101. Product combinations, resource allocations, personnel, finance, and related problems in the operations of agribusiness firms.

- **361 Farm and Natural Resources Appraisal** 3 Rec Ag Ec 340, Econ 101, 102. Factors affecting value of land; valuation for loans, sales, assessment, and condemnation. Field trips required. Cooperative course taught by UI (AgEc 316), open to WSU students.

- **370 Agricultural Prices** 3 Rec Ag Ec 201 or Econ 101; Stat course. Factors determining levels and movements of prices in agricultural commodities.

- **408 Mathematics for Economists** 3 Same as Math 408.

- **411 Applied Statistical Methods in Agricultural Economics** 3 Rec Math 201, 202, Stat course. Application of sampling techniques, linear regression and analysis of variance and covariance to agricultural economics research problems. Credit not granted for both Ag Ec 409 and 509.

- **411 Applied Operations Research Techniques in Agricultural Economics** 3 Rec Math 201, 202, Stat course. Linear programming, transportation models, simulation, and inventory models.

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**Note:** This document contains information that is subject to change and should be verified with the most recent version of the course catalog or directly with the university. The content provided here is for educational purposes and does not replace official university materials.
420 International Agriculture and Economic Development 3 Rec Ag Ec 201 or Econ 101. Nature and roles of agricultural development, trade and institutions.

425 Economic Analysis of Projects and Policies 3 Rec 300-level course in Ag Ec or Econ. Principles and procedures for evaluating projects and policies using cost-benefit analysis and related economic approaches.

430 Financing Agribusiness Firms 3 Rec Acctg 231, Ag Ec 201, Stat course. Financial management, decision making, and analysis in the agribusiness sectors; capital market institutions and valuation processes.

440 [M] Advanced Farm and Ranch Management 3 Rec Ag Ec 340. Economic principles applied to organization and operation of farms and ranches.

450 [M] Advanced Agricultural Marketing 3 Rec Ag Ec 350 or 370; Econ 301, Stat course. Institutions, practices, policies, and problems in agricultural input and output marketing.


460 [M] Advanced Agribusiness Management 3 Rec Acctg course, Ag Ec 360, Econ 301. Alternatives in the market behavior of firms that handle, process, and trade in agricultural inputs and outputs.

480 [M] Resource Economics 3 Rec 300-level course in Ag Ec or Econ. Economic principles applied to natural resource problems, issues, and policies.

490 [M] Agricultural Policy 3 Rec Ag Ec 201 or Econ 101. Public policy issues related to commercial agriculture and rural areas.

495 Instructional Practicum V I-3 May be repeated for credit; cumulative maximum 6 hours. Prereq by interview only. Academic experience in teaching and tutoring undergraduates in agricultural economics. S, F grading.

497 Agribusiness Internship V 2-4 May be repeated for credit. By interview only. Off-campus work-study in the agribusiness industry. S, F grading.

498 Seminar 1 May be repeated for credit. For seniors. Current problems. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

502 Economics of Public Choice in Agriculture and Natural Resources 3 Rec Econ 401, 501. Basic concepts of economics of public choice and their application to public policy in agriculture, rural areas and natural resources.

503 Agricultural Demand and Supply Systems 3 Rec Econ 501. Microeconomic duality theory applied to agricultural firms, consumers, and agricultural markets.

509 Applied Statistical Methods in Agricultural Economics 3 Graduate-level counterpart of Ag Ec 409; additional requirements. Credit not granted for both Ag Ec 409 and 509.

510 Statistics for Economists 4 Rec Ag Ec 408. Statistical theory underlying econometric techniques utilized in quantitative analysis of agricultural economic problems.

511 Linear and Nonlinear Programming in Agricultural Economics 3 Rec Ag Ec 408, 411. Mathematical programming applications of duality, parametric programming, inverse matrix methods, transportation problems, game theory, quadratic, integer, separable, and dynamic programming.

512 Advanced Agricultural Econometrics 3 Rec Ag Ec 510. Model construction and estimation for analysis of agricultural supply and demand problems.

513 Advanced Econometric Application 3 Rec graduate-level econometrics course. Theory and computer implementation of advanced econometric techniques.

520 Regional Economics 3 Rec Econ 301, 401, Math 201. The construction of multisector economic models and their use in regional policy analysis. Cooperative course taught by WSU, open to UI students (Ag Ec 520).

521 Advanced Topics in Agricultural Economics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Current topics in agricultural development, marketing, farm management, and agricultural policy.

522 Topics in Agricultural Economics V 1-4 Current topics in agricultural economics.

540 Agricultural Production Economics 3 Rec calculus, intermediate microeconomic theory. Theoretical economic concepts applied to analysis of agricultural problems, production intensity, factor and production combinations, uncertainty and technological change.

541 Agricultural Decision Analysis 3 Rec Ag Ec 540 or Econ 501. Alternative theories and methodologies for dealing with risk and dynamics in economic and resource management decisions.

550 Topics in Agricultural Marketing 3 Rec graduate macroeconomic theory. Application of economic theory to topics in agricultural marketing and price analysis.

551 Modeling Agricultural Commodity Markets 3 Theoretical and applied issues in constructing models of agricultural commodity markets for empirical analysis.

560 Agribusiness Management and Marketing 3 Rec Ag Ec 460. Management and marketing problem situations in agribusiness; alternative policies, strategies, and decisions.

580 Advanced Resource Economics 3 Rec Econ 501. Economic analysis of the allocation and use of environmental and natural resources.

581 Advanced Topics in Resource Economics 3 Rec Ag Ec 580. Theoretical underpinnings of advanced topics in resource economics.

597 Agribusiness Internship V 2-4 May be repeated for credit; cumulative maximum 8 hours. Off-campus student work-study in the agribusiness industry. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

601 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

602 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Program in American Studies


The Program in American Studies offers courses of study leading to the degrees of Bachelor of Arts in American Studies, Master of Arts in American Studies, and Doctor of Philosophy (American Studies).

American Studies explores the many ways we examine, define, and know ourselves as Americans. The major emphasizes an interdisciplinary approach combining the best insights of such fields as American history, literature, ethnic and women’s studies, communication, political science, sociology, art, and architecture. Such an approach provides students with a richer portrait of American culture than they may get from a single discipline and offers a complex sense of our multicultural past and present. The aim is the integrative study of the historical development of American society, politics, literature, arts, and popular culture. The program promotes understanding of why, in the words of Henry James, “it is a complex fate to be an American, and why, in the words of Gloria Anzaldua, to be American is to “live in the Borderlands...to put chile in the borscht, eat whole wheat tortillas, speak Tex-Mex with a Brooklyn accent.”

Degree Program Requirements

The undergraduate major consists of a core curriculum of 30 hours (with some options available within the core) plus an additional 12-hour area of concentration which permits students to investigate particular aspects of American culture.

Core Requirements, in suggested order

Hist 110, 111, Am St/Engl/Hist 216, W St/CAC/Soc 300, Engl 380; Engl 381 or 382, 300-400-level American history; 300-400-level CAC or W St; Am St/Engl 470, 471 or 472.

Areas of Concentration

A series of approved, linked courses in various departments have been established in the following interdisciplinary areas to satisfy the 12-hour requirement for an area of concentration:

1. Environment and Culture
2. Multicultural American West
3. Nationalisms and American Identities
4. Popular Culture, Film, and Mass Media
5. Science, Technology, and Culture
6. The Arts, Culture, and Social Change

The intention of the American studies faculty is to encourage students, with the approval of their advisors, to investigate areas not officially approved in the foregoing list. By designing their own programs and taking courses that will aid in their research, students can investigate the effects of agriculture, engineering, education, architecture, folklore, theatre, or mass communications, to name only a few, on American culture.
AMERICAN STUDIES DEGREE PROGRAM
(120 HOURS) ✔FYDA

Freshman Year
First Semester
Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Elective 3

Second Semester
Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Social Sciences [S,K] (GER) 3
Tier I Science [Q] (GER) 3
Science Elective1 1
Elective 3

Sophomore Year
First Semester
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological Sciences [B] (GER) 4
Foreign Language or Elective2 4
Hist 110 3

Second Semester
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Foreign Language or Elective2 4
Hist 111 3
Physical Sciences [P] (GER) 4

Senior Year
First Semester
Am St/Engl/Hist/W St 216 American Culture 3
Two courses from: Am St/Engl 470, 471, or 472 6
Two courses in an area of concentration 6
300-400-level American literature 3
300-400-level American history 3

Minor in American Studies
A minor in American studies requires 21 hours which shall include:

First Semester
Am St/Engl/Hist/W St 216 American Culture 3

Second Semester
Two courses from: Am St/Engl 470, 471, or 472 6
Two courses in an area of concentration 6
300-400-level American literature 3
300-400-level American history 3

Preparation for Graduate Study
American Studies majors considering graduate work in this field should include college-level courses in at least one modern European foreign language in their undergraduate program. An area of concentration in American literature, American history, or comparative American cultures is strongly recommended, as are advanced writing courses.

Students pursuing BA degrees in English, history, and other humanities and social science areas may also apply to the graduate program in American Studies at WSU; a guide to the MA and PhD program is available through the office of the Director of American Studies.

Description of Courses

American Studies
Am St 216 [H] American Culture 3 Same as Engl 216.
470 Culture of the American West 3 May be repeated for credit; cumulative maximum 6 hours. Same as Engl 470.
471 [H] Cultural Politics Since World War II 3 American popular culture, politics and culture of the 1960s, or topics in recent cultural politics.
472 [T] Ecological Issues and American Nature Writing 3 Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence. Representation of nature in American fiction and nonfiction; role of culture in shaping environmental problems and solutions.
496 Topics in American Studies 3 May be repeated for credit; cumulative maximum 9 hours. Same as Engl 496. Credit not granted for both Am St 496 and 596.
500 Colloquium 1 May be repeated for credit; cumulative maximum 12 hours. Current research in American studies, S, F grading.
501 Readings in American Studies I 3 May be repeated for credit; cumulative maximum 6 hours. Readings in key texts in American culture, beginnings to 1865.
502 Readings in American Studies II 3 May be repeated for credit; cumulative maximum 6 hours. Readings in key texts in American culture, 1865 to present.
513 Theory and Method in American Studies 3 Same as Engl 513.

Minor in American Studies
Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and the 1 credit Science Elective.

Preparation for Graduate Study
American Studies majors considering graduate work in this field should include college-level courses in at least one modern European foreign language in their undergraduate program. An area of concentration in American literature, American history, or comparative American cultures is strongly recommended, as are advanced writing courses.

Students pursuing BA degrees in English, history, and other humanities and social science areas may also apply to the graduate program in American Studies at WSU; a guide to the MA and PhD program is available through the office of the Director of American Studies.

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502 Readings in American Studies II 3 May be repeated for credit; cumulative maximum 6 hours. Readings in key texts in American culture, 1865 to present.
513 Theory and Method in American Studies 3 Same as Engl 513.

Bachelor’s Program
Animal sciences students learn the biological and economic principles and practices associated with agricultural animal production, and companion and laboratory animal care. This prepares graduates for a wide variety of career opportunities. These opportunities include animal production and food processing (meats, dairy products, etc.); the service industries (including feed manufacturing and sales, pharmaceuticals, artificial insemination, agricultural equipment and financial institutions, etc.), and government agencies. Continued education leading toward graduate or professional degrees is available for students from the animal sciences program. Employers seek out graduates in animal sciences because of their practical and technical knowledge of animal care and production.

Students in animal sciences take a wide variety of agricultural and non-agricultural courses, receiving in-depth training in the biology of farm and companion animals. The curriculum is designed to provide students with the scientific, practical, and people skills to make them productive members of the food production, animal care and related industries. Prior to their junior year, students select an option to coincide with their interests. These options have required courses and electives which allow program specialization.

The Industry Option emphasizes the scientific practices of farm and companion animals and other areas of agriculture. This option is recommended for students preparing to work in agricultural animal production, companion animal care, or agribusiness.

The Production Management Option emphasizes the business aspects of animal agriculture and companion animal management. This option requires fewer basic science courses while emphasizing economics and practical experience. Employment opportunities are found in general management of agricultural animal enterprises and the financial industry related to agriculture.

The Pre-veterinary Medicine/Science Option places more emphasis on basic science courses. This option is recommended for students planning to ap-
ply to the professional program leading to the Doctor of Veterinary Medicine, graduate school, or to study further and work in more technical or specialized aspects of the industry, such as extension service, teaching, technical consulting or laboratory work.

Many opportunities outside the classroom are available for students to further their educational experiences. Animal sciences students are encouraged to participate as part-time employees in the livestock production centers or in research and teaching programs within the department. Many opportunities are available for students to on-the-job training in professional internships with different segments of the agricultural, companion animal or research sectors. Active student clubs within the Department of Animal Sciences and the College of Agriculture and Home Economics and the university community provide students with both professional and social contacts with faculty and other students. Several departmental and college scholarships are available based on ability, financial need and interest area.

Animal sciences courses are attractive to students in many other majors and from other backgrounds. Animal sciences courses broaden a student’s knowledge of applied biology, agriculture and the environment, and society in general. Many students find a minor in animal sciences complements and adds depth to other majors.

## Degree Program Requirements

At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses. One of the following degree programs must be chosen and completed.

### INDUSTRY DEGREE PROGRAM (121 HOURS)  

**Junior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 313</td>
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<tr>
<td>Acctg 230</td>
<td>3</td>
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<tr>
<td>Ag Ec 335 or B Law 210</td>
<td>3</td>
</tr>
<tr>
<td>CropS 101, 302, 303, or NATRS 351</td>
<td>3</td>
</tr>
<tr>
<td>Engl 201 [W] (GER)</td>
<td>3</td>
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**Complete Writing Portfolio**

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 314</td>
<td>3</td>
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<tr>
<td>A S 330</td>
<td>3</td>
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<td>A S 350</td>
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<tr>
<td>A S 380</td>
<td>1</td>
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<tr>
<td>Ag Ec 340</td>
<td>3</td>
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### Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 285, 488, CropS 302, 303, or NATRS 351</td>
<td>3</td>
</tr>
<tr>
<td>A S 406 [M]</td>
<td>3</td>
</tr>
<tr>
<td>A S 440</td>
<td>3</td>
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<tr>
<td>A S 454</td>
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Elective\(^1\) 6

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 408 [M]</td>
<td>3</td>
</tr>
<tr>
<td>A S 466, 468, 472, 474 [M], 476, or 478 [M]</td>
<td>3</td>
</tr>
<tr>
<td>A S 488 [M] or NATRS 351</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective\(^1\) 3

\(^1\) Some courses offered fall or spring term only.

\(^2\) Take Stat 212 unless math proficiency has been met.


### PRODUCTION MANAGEMENT DEGREE PROGRAM (121 HOURS)

**Freshman Year**

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<thead>
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<th>First Semester</th>
<th>Hours</th>
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<tbody>
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<td>A S 101</td>
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<tr>
<td>A S 180</td>
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</tr>
<tr>
<td>Chem 101 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 107, 140 [N], 171 [N], 201, or 202 [N] (GER)</td>
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<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 166, 172, 174, 175, 176, or 178(^1)</td>
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<td>Bio S 103 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 102 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>SpCom 102 [C] or H D 205 [C] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
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**Sophomore Year**

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<th>First Semester</th>
<th>Hours</th>
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<tbody>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
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<tr>
<td>V MS 261</td>
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<th>Second Semester</th>
<th>Hours</th>
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<td>Ag Ec 210 or Cpt S 405</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>SoilS 201</td>
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<tr>
<td>Stat 212 [N] (GER) or 412(^2)</td>
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**Junior Year**

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<th>First Semester</th>
<th>Hours</th>
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<td>A S 313</td>
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<tr>
<td>Acctg 230</td>
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<tr>
<td>Ag Ec 335 or B Law 210</td>
<td>3</td>
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<tr>
<td>CropS 101, 302, 303, or NATRS 351</td>
<td>3</td>
</tr>
<tr>
<td>Engl 201 [W] (GER)</td>
<td>3</td>
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**Complete Writing Portfolio**

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 314</td>
<td>3</td>
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<tr>
<td>A S 330</td>
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<td>A S 350</td>
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<tr>
<td>A S 351</td>
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<tr>
<td>A S 380</td>
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<tr>
<td>Ag Ec 340</td>
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**Senior Year**

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<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 285, 488, CropS 302, 303, or NATRS 351</td>
<td>3</td>
</tr>
<tr>
<td>A S 406 [M]</td>
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<tr>
<td>A S 440</td>
<td>3</td>
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<td>A S 454</td>
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Elective\(^3\) 6

<table>
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<th>Second Semester</th>
<th>Hours</th>
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<tbody>
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<td>A S 408 [M]</td>
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<td>A S 466, 468, 472, 474 [M], 476, or 478 [M]</td>
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<tr>
<td>A S 488 [M] or NATRS 351</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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</tbody>
</table>

Elective\(^3\) 3

\(^1\) Some courses offered fall or spring term only.

\(^2\) Take Stat 212 unless math proficiency has been met.


### PRE-VETERINARY MEDICINE/SCIENCE DEGREE PROGRAM (121 HOURS)

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 101</td>
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<td>A S 180</td>
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<td>Chem 105 [P] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>Math 107, 140 [N], 171 [N], 201, or 202 [N] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 172, 174, 175, or 176(^1)</td>
<td>1</td>
</tr>
<tr>
<td>Bio S 103 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 102 [P] (GER)</td>
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<td>H D 205 [C], or SpCom 102 [C] (GER)</td>
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<td>GenEd 110 [A] or 111 [A] (GER)</td>
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**Sophomore Year**

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<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>A S 260 or 272</td>
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<td>GenEd 110 or 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>V MS 261</td>
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<tbody>
<tr>
<td>Ag Ec 210</td>
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<td>Social Sciences [S,K] (GER)</td>
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<table>
<thead>
<tr>
<th>Junior Year</th>
<th>Hours</th>
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<td>A S 313</td>
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<td>Acctg 230</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Engl 201 [W] or 402 [W] (GER)</td>
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Elective\(^2\) 3

**Complete Writing Portfolio**

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<th>Hours</th>
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<tbody>
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<td>A S 330</td>
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<tr>
<td>A S 350</td>
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</tr>
<tr>
<td>A S 351</td>
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<tr>
<td>A S 378</td>
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</tr>
<tr>
<td>A S 380</td>
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<td>Ag Ec 340</td>
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Elective\(^3\) 3

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<tbody>
<tr>
<td>A S 408</td>
<td>3</td>
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<tr>
<td>A S 466, 468, 472, 474 [M], or 478 [M] or 476 (^1)</td>
<td>3</td>
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<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
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</tbody>
</table>

Elective\(^3\) 6

\(^1\) Some courses offered fall or spring term only.

\(^2\) Take Stat 212 unless math proficiency has been met.


\(^4\) Strongly recommended.
In order to meet the increasing demand for food-animal veterinarians, the Department of Animal Sciences and the College of Veterinary Medicine have created a combined program designed to train selected, highly qualified students to earn both a Bachelor of Science in Animal Sciences and a Doctor of Veterinary Medicine degree within a seven-year program. Students will take a three-year animal science program, completing all General Education Requirements, the animal sciences core and pre-veterinary medicine requirements. This program includes mathematics; chemistry, including organic and biochemistry; general biology; physics; and the core of animal sciences courses, including an introduction to farm animals; then further education in animal feeds and nutrition, breeding and genetics, reproduction and the economics of animal production management. Students will then enter the College of Veterinary Medicine and complete the requirements for total hours and 300-400-level hours before earning the BS in Animal Sciences. Students will continue the curriculum, leading to the DVM degree after a total of seven years of college work.

Students will enter the university under normal procedures and must be advised in the Department of Animal Sciences. Qualified students will be invited to apply for the program. A high scholastic achievement and the promise of the same and demonstrated experience and interest in working with farm animals will be the primary criteria for initial invitation. Selected students will be identified and invited to apply for the AS-DVM program in the second semester of the first year. Students would then declare animal sciences as a major in the first semester of the sophomore year and enter the joint program in that year. The procedures for acceptance into the DVM program will be the same as those for other applicants. Successful participants will complete the three-year animal sciences program and begin the veterinary medicine curriculum in their fourth year of study. A 3.0 or higher grade point average for the first year and a 3.3 GPA upon completion of the third year will be required for the program. If the student is not accepted or withdraws from the AS-DVM program, the student could earn the BS in Animal Sciences and/or apply to the College of Veterinary Medicine under normal procedures.

**Degree Program Requirements**

### First Year

**First Semester**
- A S 380 1
- A S 406 [M] or 408 [M] 3
- A S 440 3
- A S 441 1
- BC/BP 364 4
- Elective 1 3

**Second Semester**
- Tier III Capstone (GER) 3
- A S 466, 468, 472, 474, 476, or 478 3
- Elective 1 9

### Second Year

**First Semester**
- A S 166, 176, or 178 1
- Arts and Humanities [H,G] or Intercultural Studies [I,G,K] GER 3
- Bio S 103 or 104 [B] (GER) 3 or 4
- Chem 106 [P] (GER) 4
- GER 3
- H D 205 [C] (GER) 3

**Second Semester**
- A S 166, 176, or 178 1
- AgEc 201 [S] (GER) 3
- Bio S 104 [B], GenCB 301, or GER 3 or 4
- Chem 240 4
- GenEd 110 [A] (GER) 3

### Third Year

**First Semester**
- A S 313 4
- A S 406, 466, 472, or 478 [M] 3
- BC/BP 364 3
- Engl 402 [W] (GER) 3
- GER 3

**Second Semester**
- A S 380 1
- A S 408 3
- A S 466, 474, or 476 3
- A S 485 3
- AgEc 340 3
- GER 3

### Fourth-Seventh Years

Those students finishing all required classes would complete only the DVM curriculum from this point on, with the exception of V MS/A S 414. Students who still need either A S 406 or 408 would enroll in one of those in lieu of V MS/A S 414. If two 400-level animal production courses (A S 466, 472, 474, 476, or 478) were not completed, then students would enroll in one of them. Students will receive the BS in Animal Sciences upon successful completion of at least 120 credit hours and the final two 400-level A S classes. Most students will meet these requirements after one year of the DVM program. Successful completion of the College of Veterinary Medicine program will earn the Doctor of Veterinary Medicine.

**Minor in Animal Sciences**

A minor requires a minimum of 16 semester hours of animal science courses, half of which must be in 300-400-level work. Students wishing to declare a minor should consult the department as early as possible to develop an approved schedule of courses.

**Transfer Students**

Students planning to transfer to the Department of Animal Sciences, Washington State University, from community colleges or other institutions should complete as many of the required courses in chemistry, biological sciences, physics, mathematics and general education as possible prior to transfer.

**Description of Courses**

### Animal Sciences

**A S**

1. **101 Introductory Animal Science** 3 (2-3) Types and breeds of livestock, terminology, methods, management systems, techniques of animal and poultry production and consumer impact. Credit not granted for both A S 101 and 103. Cooperative course taught jointly by WSU and UI (A VS 109).

2. **103 General Animal Science** 3 Fundamental concepts of the principles and practices of animal agriculture production systems and consumer products. Credit not given for both A S 101 and 103.

3. **166 Horse Management Laboratory** 1 (0-3) Introductory laboratory designed to familiarize students with approved management practices for horse enterprises. S, F grading. Cooperative course taught by WSU, open to UI students (A VS 166).

4. **172 Dairy Cattle Management Laboratory** 1 (0-3) Management practices associated with a dairy enterprise. S, F grading. Cooperative course taught by UI (AVS 172), open to WSU students.

5. **174 Beef Calf Management Laboratory** 1 (0-3) Management practices associated with a beef cow calf enterprise for students without experience. S, F grading. Cooperative course taught jointly by WSU and UI (AVS 174).

6. **176 Sheep Management Laboratory** 1 (0-3) Management practices associated with a farm flock sheep enterprise. S, F grading. Cooperative course taught by UI (AVS 176), open to WSU students.
178 Swine Management Laboratory 1 (0-3) Management practices associated with a swine enterprise. Field trip and special clothing required. S, F grading. Cooperative course taught by WSU, open to UI students (AVS 178).

180 Animal Sciences Orientation 1 Animal sciences as a profession: career opportunities, curriculum, advisement, internships, externships, animal centers, special services centers, and course requirements.

205 Nutrition of Pet Animals 2 Prereq: biology course, chemistry course. Nutritional principles governing optimum growth, health, and performance of pet animals. Cooperative course taught by WSU, open to UI students (AVS 205).

213 Applied Animal Nutrition 3 Prereq: one semester Chem; one semester Bio S. Not open to A S majors. Characteristics of nutrients, nutritional requirements, ration calculations and feeding practices for farm animals. Credit not granted for both A S 213 and 313. Cooperative course taught jointly by WSU and UI (AVS 205).

260 Live Animal and Carcass Evaluation 3 (1-6) Basic principles of live animal and carcass evaluation. Cooperative course taught jointly by WSU and UI (AVS 203).

266 Equine Enterprise Management 2 Management principles that are applicable to equine enterprises.

269 Beginning Equitation 1 (0-1) Equitation fundamentals, developing proficiency in riding and schooling techniques for horse and rider; anatomy of horse, equipment, care and safety.

272 Dairy Cattle Traits 2 (1-3) Evaluating form and function in dairy cattle; measurement of production and evaluation of type. Cooperative course taught by WSU, open to UI students (AVS 272).

285 Rights and Welfare of Animals 3 Prereq: Bio S 102 or 103. Ethical considerations and welfare of animals used as companions, for food, and in scientific research. Cooperative course taught by WSU, open to UI students (AVS 204).


313 Feeds and Feeding 4 (3-3) Prereq: Bio S 103. Utilization, practices, requirements, nutritive characteristics, and calculations of rations for animals. Field trip required. Credit not granted for both A S 213 and 313. Cooperative course taught jointly by WSU and UI (AVS 305).

314 Principles of Nutrition 3 Prereq: Bio S 104; Chem 102 or 106; Chem 240. Digestion, absorption, metabolism, and function of nutrients. Cooperative course taught jointly by WSU and UI (AVS 305).

330 Genetics of Farm Animals 3 (2-3) Prereq: GenCB 301; Stat 212 or 412. Genetic principles applied to breeding of farm animals. Cooperative course taught by WSU, open to UI students (AVS 330).

350 Reproduction of Farm Animals 3 Prereq: Bio S 104; Chem 102 or 106. Anatomy and physiology of reproductive organs; hormones of reproduction; production of gametes; artificial insemination; fertilization; prenatal development; fertility and infertility. Cooperative course taught jointly by WSU and UI (AVS 452).

351 Reproduction of Farm Animals Laboratory 1 (0-3) Prereq: A S 350 or c/l. Laboratory and field techniques used in animal reproduction involving hormones, artificial insemination, semen evaluation and pregnancy.


366 Equine Science 3 (2-3) Prereq: A S 166 or equivalent horse experience. Development, functional use, behavior and management of the horse. Field trip required. Cooperative course taught by WSU, open to UI students (AVS 366).

367 Prevention and Management of Equine Health Problems 3 Same as V MS 367.

369 Principles and Techniques of Equine Training 3 (1-6) Prereq: experience with horses; by interview only. Prescribed steps using various techniques to illustrate the principles of training; equine psychology, anatomy and physiology related to training.

378 Advanced Livestock and Meat Selection and Evaluation 2 (0-6) May be repeated for credit. Prereq: A S 260 or 272. Principles and practices of livestock and meat selection and evaluation. Off-campus and weekend participation required.

380 Seminar 1 Prereq junior standing. Issues and preparation for careers in animal sciences areas.

398 Cooperative Education Externship 2 V 2-8 May be repeated for credit; cumulative maximum in A S 398 and 399: 12 hours. Cooperative education externship in livestock production or related field, S, F grading.

399 Pracicum 1 V 1-8 May be repeated for credit; cumulative maximum in A S 398 and 399: 12 hours. Directed internship in livestock production and related fields conducted at WSU centers or on off campus. S, F grading.


428 Topics in Animal Breeding 2 May be repeated for credit; cumulative maximum 4 hours. Prereq: A S 330. Systems of selection and mating for genetic improvement in farm animals. Credit not granted for both A S 428 and 528.

440 [M] Physiology of Domestic Animals 3 Prereq: V An 308. Basic animal functions; relationship and difference between domestic animals; measurement of functional processes.

441 Physiology of Domestic Animals Laboratory 1 (0-3) Prereq: A S 440 or c/l. Measurement of functional processes in domestic animals.

451 Endocrine Physiology 3 Prereq: BC/BP 364, Bio S 104. Structure and physiology of glands of internal secretion and their hormonal effects on processes of growth, development, metabolism, and production of vertebrates; minor emphasis on invertebrates. Credit not granted for both A S 451 and 551. Cooperative course taught jointly by WSU and UI (AVS 451).

452 Physiology of Lactation 3 Prereq: A S 350. Anatomy, physiology, and endocrine control of mammary gland development and milk secretory process. Cooperative course taught jointly by WSU and UI (AVS 413).

454 Artificial Insemination and Pregnancy Detection 2 (0-6) Prereq: A S 351. Techniques in semen handling, insemination and pregnancy detection in cattle. Special clothing required. Cooperative course taught jointly by WSU and UI (AVS 218).

466 Horse Production 3 (2-3) Prereq: A S 313, 330, 350. Principles of breeding, feeding, and management of horses. Field trip required. Cooperative course taught by WSU, open to UI students (AVS 466).

468 Aquaculture 2 Prereq: Bio S 104. Reproduction, nutrition, behavior, management, breeding, physiology, health, and laws governing aquaculture of finfish and shellfish. Field trip required.


476 Sheep Science 3 (2-3) Prereq: A S 313, 330, 350. Application of principles of genetics, reproduction, nutrition, health, marketing to management; and use of wool. Cooperative course taught by UI (AVS 476), open to WSU students.


488 [M] Perspectives in Biotechnology 3 Prereq: GenCB 301. Theory and application of biotechnology in agriculture, industry, and medicine; methodological, environmental, social, and economic concerns. Credit not granted for both A S 488 and 588. Cooperative course taught by WSU, open to UI students (AVS 488).

499 Special Problems 1-4 May be repeated for credit. S, F grading.

500 Seminar in Animal Sciences 1 May be repeated for credit. Current developments in animal sciences.

504 Special Topics V 1-12 Cooperative course taught by UI (AVS 504), open to WSU students.
505 Experimental Nutrition V 1 (0-3) to 3 (0-9)
Prereq BC/BP 364; Chem 220, 222. Laboratory techniques used in nutritional research; modern biochemical methods of analysis; introduction to physiological chemistry.

507 Advanced Nutrient Metabolism 2 Prereq A S 406 or 408; 504, BC/BP 364. Advanced topics in metabolic regulation of carbohydrate, fat and amino acid use by animals. Cooperative course taught by WSU, open to UI students (AVS 507).

510 Digestion and Nutrient Utilization in Animals 2 (1-2) Gastrointestinal physiology, rate of passage, feed intake regulation, measures of digestibility, starch, fat and nonstarch polysaccharide, and digestion and utilization of nutrients. Cooperative course taught by WSU, open to UI students (AVS 510).

513 Mineral and Vitamin Metabolism 4 Prereq A S 406 or 408; BC/BP 364. Absorption, excretion, metabolism, dietary requirements and interactions of minerals and vitamins in animals and humans. Cooperative course taught by WSU, open to UI students (AVS 513).

528 Topics in Animal Breeding 2 May be repeated for credit; cumulative maximum 4 hours. Graduate-level counterpart of A S 428; additional requirements. Credit not granted for both A S 428 and 528.

540 Seminar in Animal Physiology 1 May be repeated for credit. Current developments in animal physiology. Cooperative course taught jointly by WSU and UI (AVS 540).

550 Advanced Reproduction 4 (3-3) Prereq A S 350. Physiology of sexual maturation; gametogenesis; sexual cycle; fertilization; embryonic development; physiological, chemical and immunological characterization of hormones of reproduction. Cooperative course taught by WSU, open to UI students (AVS 550).

551 Endocrine Physiology 3 Graduate-level counterpart of A S 451; additional requirements. Credit not granted for both A S 451 and 551. Cooperative course taught jointly by WSU and UI (AVS 551).

556 Embryo Transfer in Domestic Animals 2 Prereq A S 350. Embryo transfer in domestic animals including techniques, equipment, and state-of-the-art biotechnology.

557 Laboratory in Embryo Transfer 1 (0-3) Prereq c/l in A S 556. Laboratory principles and practices in embryo transfer.

560 Domestic Animal Growth 2 Prereq A S 406, 408, or 440; BC/BP 364 or 563. Advanced topics in principles of growth and regulation in domestic animals. Cooperative course taught jointly by WSU and UI (AVS 560).

573 Advanced Dairy Management 2 (1-3) Graduate-level counterpart of A S 473; additional requirements. Credit not granted for both A S 473 and 573.

588 Perspectives in Biotechnology 3 Graduate-level counterpart of A S 488; additional requirements. Credit not granted for both A S 488 and 588.

598 Advanced Topics in Animal Sciences 1 or 2 May be repeated for credit. Recent research in various disciplines of animal sciences. Cooperative course taught by WSU, open to UI students (AVS 598).

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Anthropology

Professor and Department Chair, T. A. Kohler; Professors, R. E. Ackerman, J. H. Bodley, G.S. Krantz, W. D. Lipe, P. J. Mehringer, Jr., W. Willard; Associate Professors, C. E. Gustafson, B. S. Hewlett, L. S. Stone; Assistant Professors, R. A. Hansis, G. A. Huckleberry, J. M. Mageo, S. A. Weber; Associate Professor and Director of Center for Northwest Anthropology, W. Andeisky, Jr.

The curriculum includes courses in the four major subfields of anthropology: archaeology, cultural/sozial anthropology, linguistic anthropology, and physical anthropology. These courses will familiarize students with current issues in human evolution, linguistics, the prehistoric development of culture, and the role of culture in the contemporary global system. All undergraduate majors are required to gain a background in all four of these major subfields. Graduate students may specialize in archaeology, cultural anthropology, or physical anthropology. The program in archaeology emphasizes the prehistory of western North America as well as ecological archaeology, past environments, quantitative methods, models and simulations, and lithic analysis, and includes courses taught by faculty with specialties in geoarchaeology, palynology, and zooarchaeology. The department also conducts summer archaeological field schools in the Pacific Northwest and has professional-level experiences for archaeology students through the Center for Northwest Anthropology. The program in cultural anthropology emphasizes issues in international development, psychological anthropology, cultural ecology, medical anthropology, gender, and small-scale cultures.

Departmental offices and laboratories are located in College Hall, near the center of campus. Physical facilities include special laboratories for physical anthropology, palynology, geoarchaeology, and zooarchaeology, as well as research laboratories for faculty and advanced students. The Museum of Anthropology, with permanent and temporary exhibits, and ethnographic and archaeological research collections, is also housed in College Hall.

The department offers courses of study leading to the degrees of Bachelor of Arts in Anthropology, Master of Arts in Anthropology, and Doctor of Philosophy (Anthropology). Positions open to anthropologists include those in teaching, research, museum work, state and federal agencies, and private consulting firms. In addition, anthropology provides a strong foundation for a liberal arts education.

Degree Program Requirements

The Bachelor of Arts degree in the undergraduate program requires a total of 120 semester hours. At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses. See the General Education Requirements (GERs) for graduation in the WSU catalog. A minimum of 33 hours in anthropology courses are required. Grades of C- or higher are considered passing grades for all anthropology classes; D+ and lower are failing grades. No required course can be taken pass, fail. Courses are 3 credit hours except Anth 300 and 499 which are variable.

The anthropology major must achieve a grade of C- or better in Anth 203, 230, 260, 490, and in one course from each of the following: a) Anth 300, 301, 303, 304, 306, 307, 309, 316, 320, 327, 401, 402, 403, 404, 405, 418, 419, 428, 494, or 495; b) Anth 350, 355, or 450; c) Anth 463, 465, 466, 468; d) Anth 300, 330, 331, 333, 336, 370, 430, 435, 436. Majors in anthropology are advised to take advanced work in two supporting fields.

ANTHROPOLOGY DEGREE PROGRAM (120 HOURS) 

Freshman Year
First Semester
Hours

Anth 203 3
Engl 101 [W] (GER) 3
Foreign Language, if necessary, or Elective 1 3 or 4
GenEd 110 [A] (GER) 3
Tier I Science [Q] (GER) 3

Second Semester
Hours

Anth 260 3
Biological Sciences [B] (GER) 4
Communication [C,W] (GER) 3
Foreign Language, if necessary, or Elective 1 3 or 4
GenEd 111 [A] (GER) 3

Sophomore Year
First Semester
Hours

Anth 230 3
Math Proficiency [N] (GER) 3 or 4
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3

Second Semester
Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 6
Biological Anth Elective 3
Cultural Anth Elective 3
Intercultural [I,G,K] (GER) 3
Science Elective 1

Junior Year
First Semester
Hours

Anthropology Anth Elective 4
Arts & Humanities [H,G] (GER) 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Electives 6
Complete Writing Portfolio

Second Semester
Hours

300-400-level Electives 9
Anth Electives 6
Consider study abroad or summer field school

Senior Year
First Semester
Hours

Anthropology Anth Elective 4
Arts & Humanities Electives 9
Anth 401 [M], 403 [M], 405 [M], 430 [M], or 468 [M] 3
Linguistic Anth Elective 3

Second Semester
Hours

300-400-level Electives 9

63
**Department of Anthropology**

Anth 490 [M] 3

Tier III Capstone (GER) 3

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Some anthropology courses may be taken in either fall or spring in a given year. Refer to the time schedule and your advisor.

1. Two years of one foreign language from high school or one year at college required.
2. One 4-credit Tier I Science may be substituted for both the 3-credit Tier I Science and the 1-credit Science Elective.
5. Concentrating electives beginning in the junior year in one subarea of anthropology or in a minor discipline in consultation with the advisor is recommended.
6. Take three classes from the four subdisciplines.

**Minor in Anthropology**

A student with 90 semester hours may certify a minor. A minor requires a minimum of 18 semester hours in anthropology, including three of the following: Anth 101 or 198, 203, 230, and 260. At least 9 hours must be 300-400-level work. A minimum grade of C- is required in each course contributing to the minor.

**Preparation for Graduate Study**

As preparation for work toward an advanced degree a student should have completed not less than 18 hours in anthropology.

**Description of Courses**

**Anthropology**


130 [I] Great Discoveries in Archaeology 3 Impact of great archaeological discoveries and the work of anthropologists on our sense of the past.

198 [S] Anthropology Honors 3

201 [G] Art and Society 3 Art as an expression of social and cultural systems in non-Western societies.

203 [K] Peoples of the World 3 Principles of cultural anthropology through study of various ethnic groups from different parts of the world.

230 Introduction to Archaeology 3 Development of a dynamic picture of past human behavior from archaeological evidence.

256 Introduction to Syntax and Semantics 3 Same as Engl 256.

260 [B] Introduction to Physical Anthropology 3 Evidence for human evolution; processes of racial differentiation; techniques of physical anthropology.

300 Field Methods V 2-8 Prerequisite permission by application. Practice in methods of archaeological, ethnological, or linguistic field research.

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302 (403) [M] Childhood and Culture 3 Prerequisite 3 hours Anth or H D. How culture patterns infant, child and adolescent development.

303 Gods, Spirits, Witchcraft and Possession 3 Non-Western religions; religion as a cultural system.

304 Anthropology and World Problems 3 Prerequisite Anth 101 or 203. Data and techniques of physical and cultural anthropology applied to the solution of social and political problems.

306 Cultures and Peoples of the Middle East 3 Contemporary Arab cultures in a historical perspective within the framework of Western-Middle Eastern relations.

307 [K] Contemporary Cultures and Peoples of Africa 3 Introduction to family, social, political, economic and religious institutions of African cultures in context of African social issues.

309 [K] Cultural Ecology 3 Major findings of ecological anthropology relating to problems of population, resources, and environment in small-scale cultures.

316 [K] Gender and Culture 3 Prerequisite Anth 101, Psych 105, Soc 101, or W St 200; sophomore standing. Cross-cultural examination of the status and roles of women and men, the institution of marriage, and symbols of gender valuation.


327 Contemporary Native Peoples of the Americas 3 Contemporary cultures of Native American communities in South America, Meso America, and North America.

330 [S] Origins of Culture and Civilization 3 Prerequisite 3 hours Anth. Prehistoric roots of modern culture from the beginnings of humankind to the rise of the first great civilizations.

331 (231) [K] America Before Columbus 3 Prerequisite Anth 101 or GenEd 110. Cultures and environments of North/Middle America from the arrival of the earliest hunter-gatherers to the complex Mayan and Aztec civilizations.

333 Archaeology of Washington 3 Prerequisite Anth 230, 331, or 370. Prehistory of Washington state; for majors and nonmajors.

336 Old World Civilizations 3 Prerequisite Anth 101, 230, or 370. Evolution of complex society, urbanism, states and empires in the eastern hemisphere; survey of European, African and Asian civilizations.

350 [S] Speech, Thought and Culture 3 The role of language in social situations and as a reflection of cultural differences.

355 Language in History 3 Writing systems, language in reconstruction of culture history, language families, evolution, and parallels.

370 Past Environments and Culture 3 People and their environments from the Ice Age to modern time; archaeological, ecological, and biological data.

401 [M] History of Anthropological Theory 3 Prerequisite 6 hours Anth. Development of theories in cultural anthropology; contributions of specific individuals; representative classics. Credit not granted for both Anth 401 and 501.


404 [K] The Self in Culture 3 Prerequisite 100-level Anth, Psych or Soc; completion of one Tier I and three Tier II courses in appropriate area of coherence. Anthropological and psychological theories, folk theories in nonWestern cultures, other time and place differences and contemporary American culture regarding the self.

405 [M] Medical Anthropology 3 Prerequisite Anth 101 or 203. Relationships among disease, curing, culture and environment; nonWestern medical systems; political economy of health care.

418 Human Issues in International Development 3 Interdisciplinary analysis of complex interaction between tradition and modernity in Third World societies.

419 Cultural Components of International Business 3 Introduction to the cultural aspects of business.

428 Topics in Ethnography 3 May be repeated for credit; cumulative maximum 9 hours. Prerequisite 3 hours Anth. Culture history, ethnography, theoretical, and contemporary problems of selected culture areas. Credit not granted for both Anth 428 and 528.

430 [M] Introduction to Archaeological Method and Theory 3 Prerequisite Anth 230; 330 or 331. Archaeological theory in anthropological perspective; current trends in method and theory in American archaeology. Credit not granted for both Anth 430 and 530.

435 Cultural Resource Management 3 Role of archaeology in historic preservation and resource conservation; legal and institutional frameworks; research in a management context. Cooperative course taught by WSU, open to UI students (Anthr 435).

436 Ethnoarchaeology 3 Multidisciplinary approach (archaeology, ethnography and history) to the interpretation of past human cultures. Credit not granted for both Anth 436 and 536.

450 Descriptive Linguistics 3 Introduction to analysis and description of natural languages; phonological, syntactic, and semantic analysis of data from a variety of languages. Credit not granted for both Anth 450 and 550. Cooperative course taught by WSU, open to UI students (Anthr 450).


465 Human Evolution 3 Prerequisite Anth 260. Human origins in the light of the fossil record and evolutionary theory. Credit not granted for both Anth 465 and 565.

466 Human Osteology 3 (2-3) Prerequisite Anth 260. Observations and measurements of human skeletons; variations based on age, sex, and race; comparisons with fossil human and higher primates. Credit not granted for both Anth 466 and 566.

468 [S] [M] Sex, Evolution and Human Nature 3 Prerequisite 3 hours Anth or Bio S; completion of one Tier I and three Tier II courses in the appropriate area of coherence. Human sexuality, male-female relations, cooperation, violence and parent-child relations examined cross-culturally and in nonhuman primates utilizing evolutionary and biocultural perspectives.
490 [M] Integrative Themes in Anthropology 3
Prereq Anth 203, 230, 260. Current research
crosscutting traditional subdisciplines of anthro-

494 Development, Environment, and Health in
Latin America (Ecuador) 10 Prereq basic fluency in Spanish. Interdisciplinary exami-
nation of inter-relationships among development,
environment, and health with emphasis on
Ecuador. Taught in Ecuador.

495 Ecuador Internship/Independent Study 10
Prereq Anth 494, basic fluency in Spanish; by
interview only. Individually designed intern-
ships with development-related Ecuadorian
nongovernmental organizations or independ-
ent field projects supervised by Ecuadorian
anthropologists. Taught in Ecuador.

499 Special Problems 3 May be repeated for
credit. S, F grading.

500 Field School V 2 (0-6) to 8 (0-24) Prereq per-

501 History of Anthropological Theory 3 Gradu-
ate-level counterpart of Anth 401; additional
requirements. Credit not granted for both
Anth 401 and 501.

502 Cross-cultural Gender and Kinship 3
Graduate-level counterpart of Anth 402; addi-
tional requirements. Credit not granted for
both Anth 402 and 502.

504 Tribal Peoples and Development 3 Global
and historic perspectives on the complex is-

506 Ethnoarchaeology 3 Graduate-level coun-
terpart of Anth 428; additional requirements.
Credit not granted for both Anth 428 and 506.

539 Prehistory of the Upland Southwest 3 Pre-
history of upland portions of American South-
west; emphasis on Anasazi and Mogollon tradi-
tions and relationships to historic Pueblos.

540 Prehistory of Northwest Coast 3 Prehistoric
cultures, chronologies, and interrelationships
on the northwest coast of North America.

542 Prehistory of Alaska and Eastern Siberia 3
Prehistoric cultural developments in the Arc-
tic and sub-Arctic zones of Asia and North
America.

543 Plateau Prehistory 3 Archaeology of the in-
terior Northwest.

545 Historical Archaeology 3 Excavation and
analysis of historical archaeological sites;
acculturational implications. Cooperative
course taught by UI (Anthr 531), open to WSU
students.

546 Prehistory of the Desert West 3 Changing
desert environments and human adaptations;
processes.

549 World Archaeology 3 Current thought on ma-
jor transitions (sapienization, advent of Neo-
tholithic and of civilization) in human prehis-
tory around the world.

550 Descriptive Linguistics 3 Graduate-level coun-
terpart of Anth 450; additional require-
ments. Credit not granted for both Anth 450
and 550. Cooperative course taught by WSU,
open to UI students (Anthr 550).

553 Seminar in Communicating Anthropologi-
cal Research 3 Preparation of original re-
search reports in anthropology; survey of
types of professional communication, and of
standards and techniques.

560 Special Projects or Independent Study Vari-
able credit.

700 Master’s Research, Thesis, and/or Exam-
ination Variable credit.

Department of Apparel, Merchandising, and Interior
Design

Professor and Department Chair, J. Thompson; As-
sociate Professors, C. Bicknell, D. Brooks, C. Salas-
so; Assistant Professors, M. Culpepper, B. Eisenberg,
D. Meyer, G. Teu, D. Traye.

The Department of Apparel, Merchandising, and
Interior Design offers undergraduate and graduate
programs leading to Bachelor and Master of Arts
degrees in Apparel, Merchandising, and Textiles
and in Interior Design.

APPAREL, MERCHANDISING, AND
TEXTILES

The philosophy of the program is based on a concern
for human beings and the roles dress and appearance
play in the negotiation of human relationships.
Graduates from the Program in Apparel, Merchandis-
ing, and Textiles should be able to think clearly
and creatively and be able to solve problems in a profes-
sionally competent manner. Above all, this education
should lead the student to develop intellectual curi-
osity that allows the graduate to continue to develop
as a person and as a professional throughout life.

The multidisciplinary nature of the program is
structured to encompass the broad body of knowl-
edge related to apparel and textiles. The curriculum
is built upon the core competencies identified by a
committee from the International Textile and Ap-
parel Association (ITAA). These competencies are:
aesthetics; global diversity and textile/apparel pro-
duction; policy and ethical issues; apparel and
human behavior; problem solving and research; ap-
parel and textile materials; business practices; and
professional development.

Degree Program Requirements

At least 40 of the total hours required for the bachelor’s degree in the merchandising and prod-
uct development degree programs must be in 300-
400-level courses. Courses required in both pro-
grams cannot be taken on a pass, fail basis.

MERCHANDISING DEGREE PROGRAM

Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>AMT 108</td>
<td>2</td>
</tr>
<tr>
<td>Anth 101 [S], Soc 101 [S] or Psych 105 [S] (GER)</td>
<td>3</td>
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Department of Apparel, Merchandising, and Interior Design

PRODUCT DEVELOPMENT DEGREE PROGRAM (120 HOURS)

**Freshman Year**

**First Semester**

- AMT 108 

**Second Semester**

- Psych 105 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER)$^1$ 3

**Sophomore Year**

**First Semester**

- AMT 215 
- AMT 216 or 218 
- Econ 102 [S] (GER) 
- F.A 211 
- FSHN 130 [B] (GER) 

**Second Semester**

- AMT 220 
- Biological [B] Sciences (GER)$^2$ 3 or 4
- Merchandising Elective$^2$ 6

**Junior Year**

**First Semester**

- AMT 314 
- AMT 317 
- Cpt S 105 
- Mktg 360 
- Physical [P] Sciences (GER)$^4$ 3 or 4

**Second Semester**

- Complete Writing Portfolio

**Senior Year**

**First Semester**

- AMT 418 
- AMT Electives$^3$ 5
- Intercultural [I,G,K] (GER) 3
- Mgt 301 3

**Second Semester**

- AMT 417 
- Merchandising Elective$^2$ 6
- Mktg 470 3
- Tier III Capstone (GER) 3
- Elective 3

$^1$ Math 205 or 212 is suggested to meet Area of Coherence requirement.

$^2$ Merchandising Electives: Mgt 101, 372; B Law 210, Dec S 215, Fin 325, Mktg 467, I Bus 380, or up to 9 credits of general electives.

$^3$ Bio S 102 is suggested to meet Area of Coherence requirement.

$^4$ For a total of 7 credits of Biological and Physical Science electives.

$^3$ AMT Electives: AMT 311, 316, 412, 419, 428, 491, 492, 495, 498, 499; I D 102, 211, 311, 498.

**INTERIOR DESIGN**

The program is based on a concern for human beings and the creation of interior settings that support human activities and values. Graduates of the Program in Interior Design should be able to think creatively and solve problems in a professional manner. The interior design program is the only program in the state accredited by the Foundation for Interior Design Education Research (FIDER) and offers a Bachelor of Arts in Interior Design. The program teaches the common body of knowledge related to interior design as recognized by FIDER.

Students complete their final year at WSU Spokane, and students participate in an interdisciplinary design studio experience. This institute represents a unique collaboration among the design disciplines and students and faculty from interior design, architecture, construction management, and landscape architecture working and learning together in a team-oriented, urban environment. Upon completion of the program, students are able to analyze information, evaluate issues, and set priorities while generating creative design solutions for projects of a complex scale.

Students wishing to certify into the interior design curriculum must:

1. Complete a minimum of 45 semester hours, including four courses from Arch 101, 103, I D 101, 102, 201, 203, or equivalents.
2. Submit a statement of professional goals.
3. Submit a portfolio of class work from the courses listed above.

Certification will be granted the most qualified students based on minimum requirements and demonstrated abilities. Students should contact the department for additional information.

**Degree Program Requirements**

**INTERIOR DESIGN (120 HOURS)**

The interior design program offers a balanced program in interior design with exposure to art, architecture, and humanities. The fourth year is taught at WSU Spokane, and students participate in an interdisciplinary design studio experience. This is an integrated studio with participation from interior design, architecture, construction management, and landscape architecture. This is an interdisciplinary design studio experience. This institute represents a unique collaboration among the design disciplines and students and faculty from interior design, architecture, construction management, and landscape architecture.
Sophomore Year
First Semester
AMT 215 3
Arts & Humanities [H,G] (GER)2 3
Biological Sciences [B]1,4 3 or 4
I D 201 3
SpCom [C] (GER) 3

Second Semester
Anth [S,K], Psych [S,K] or Soc [S,K] (GER) 3
I D 202 3
I D 203 3
I D 211 3
I D 215 3

Junior Year
First Semester
I D 311 3
I D 321 4
I D 322 1
I D 325 3
Psych 105 [S] (GER) 3
Supportive Electives4 3
Complete Writing Portfolio 3

Second Semester
I D 333 4
I D 392 3
Intercultural [I,G,K] (GER) 3
Physical [P] Sciences4 3 or 4
Tier III Capstone (GER) 3

Senior Year--Spokane
First Semester
Arch 451 2
Arch 472 2
I D 415 3
I D 425 5
I D 490 3

Second Semester
I D 426 5
I D 412 2
Supportive Electives4 5

Description of Courses

Apparel, Merchandising, and Textiles

AMT
108 Introduction to Apparel, Merchandising, and Textiles 3 Overview of textiles/apparel field of study including the apparel and textiles industry, social/psychological aspects of dress, product development.

215 Textile Fundamentals 3 (2-3) Basic textile components including natural and manufactured fibers, yarns, fabric construction, dyes, and finishes. Cooperative course taught by WSU, open to UI students (HEC 215)

216 (218) Apparel Product Development I 3 (0-6) Prereq c// in AMT 215. Problem solving approach to textile and apparel production; comparison of methods, production methods, and costing for consumer-end use. Cooperative course taught by WSU and UI (FCS 223).


220 History of Western Dress and Textiles 3 Historical survey of western dress and textiles from prehistory to mid-1800s.

311 Pattern Making 3 (1-6) Development of apparel design from a basic pattern.

314 [M] Consumer Issues 3 Influences on acceptance or rejection of apparel/textile products; impact of socio-economic conditions, technology, public policy, and change on consumer behavior.


320 Textiles and Technology 3 Prereq AMT 108, 215. Current developments in technology as these impact the textile and apparel industry.

321 Cultural Diversity and Appearance 3 The influence of cultural patterns, standards, ideals, beliefs, and values on dress and appearance in cross-cultural contexts.

318 Apparel Merchandising I 3 Prereq Cpt S 105. Overview of apparel retailing, merchandise planning and buying, application of planning and buying principles, preparation for professional experience. Cooperative course taught jointly by WSU and UI (FCS 429).

598 Topics in Apparel and Textiles 3 Prereq AMT 108, 215. Current developments in technology as these impact the textile and apparel industry.

518 Apparel Merchandising II 3 Graduate-level counterpart of AMT 418; additional requirements. Credit not granted for both AMT 418 and 518.

517 Social and Psychological Aspects of Dress 3 Graduate-level counterpart of AMT 417; additional requirements. Credit not granted for both AMT 417 and 518.

519 Research Seminar 2 or 3 Literature review; preparation and review of reports.

528 International Experience in Apparel/Textiles Field 3 May be repeated for credit; cumulative maximum 6 hours. Current issues, trends, and merchandising strategies in apparel and textiles.

594 Readings in Apparel, Merchandising, and Textiles 3 Prereq graduate standing. Exploration of current topics through readings in apparel, merchandising, and textiles.

596 Advanced Instructional Practicum 3 Prereq AMT 499 or c//. Graduate-level counterpart of AMT 499; additional requirements. Credit not granted for both AMT 499 and 596.

595 Special Projects or Independent Study Variable credit. S, F grading.

Preparation for Graduate Study

Normally the applicant for graduate study should have an undergraduate major in interior design. However, candidates with a good record in related fields may be well prepared for certain areas of advanced study. Students from related disciplines would be required to take some courses required of undergraduate majors in these fields.
702 Master's Special Problems, Directed Study and/or Examination  Variable credit. S, F grading.

Description of Courses

Interior Design
1 D
101 Design Issues 3 Sensory awareness as a design determinant; introduction to basic design elements in problem identification and solving processes.
102 Basic Environmental Design Studio 3 (0-6) Prereq I D 101. Application of basic design elements to the exploration of space and form. Credit not granted for both I D 102 and I D 200.
200 Environmental Design and Communication Laboratory 4 (1-9) Prereq transfer student. Exploration of 2-D and 3-D design principles, skill development, and introduction to micro level interior space design. Credit not granted for I D 200 and I D 102 or 201.
201 Perception and Communication I 3 (0-6) Prereq Arch 101; I D 101, 102, or c/l. Application of design concepts into micro environments; design vocabulary and skill development. Credit not granted for both I D 201 and I D 200.
202 [H] The Built Environment 3 Same as Arch 202.
203 Perception and Communication II 3 (0-6) Prereq Arch 103, I D 201. Development of interior design problem-solving techniques and methods for application in environments of increasing complexity.
211 History of Design I 3 History of design forms, interiors and furnishings from prehistoric to the Industrial Revolution.
215 Materials and Components of Interior Design 3 Characteristics and properties of structural and non-structural interior materials.
311 [M] History of Design II 3 History of design forms, interiors and furnishings from the industrial revolution through the 20th century.
321 Fundamentals of Planning and Design I 4 (1-9) Prereq I D 203. Design investigations of personal space of specified size and complexity for people of varying social, economic, and cultural backgrounds.
322 Interior Programming 1 Prereq I D 203. Introduction to interior programming including space requirement analysis, organizational relationships, and functional diagrams.
325 Interior Building Systems 3 Analysis, planning, and application of interior lighting; introduction to HVAC and plumbing systems.
333 Fundamentals of Planning and Design II 4 (1-9) Prereq I D 321. Design of interior environments for the needs of the private and public sector.
392 [M] Professional Procedures 3 Business practices and procedures as related to interior design; contract documentation and specification writing.
396 Beginning CAD for Interior Design 3 (0-6) Prereq I D 321 or c/l. Design problem solving using the computer as a tool.
412 Interior Design Theory 2 Prereq I D 333. Theory, principles, and determinants of interior design applied to current practice.

415 Advanced Interior Construction and Detailing 3 Analysis of building construction and detailing which impacts interior space design.
425 Advanced Planning and Design I 5 (10-0) Prereq I D 333. Design problems and presentations emphasizing the bridges between theory and practice.
426 Advanced Planning and Design II 5 (0-10) Prereq I D 425. Interdisciplinary research and design that explores interior design as a vital part of the urban landscape.
428 International Design and Industry Experience 3 Prereq I D 425, by interview only. Study abroad working with design and industry representatives in Europe. Credit not granted for both I D 428 and 528.
490 Cooperative Education Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. Off-campus cooperative education internship with business, industry, or government unit.
495 Instructional Practice V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq senior standing, by interview only.
498 Special Topics in Interior Design V 1-3 May be repeated for credit; cumulative maximum 6 hours.
499 Special Problems V 1-4 May be repeated for credit; cumulative maximum 4 hours. S, F grading.
528 International Design and Industry Experience 3 Graduate-level counterpart of I D 428; additional requirements. Credits not granted for both I D 428 and 528.
594 Readings in Interior Design 3 Prereq graduate standing. Exploration of current topics through readings in interior design.
597 Advanced Design Theory 3 (1-6) Prereq I D 425. Environmental and product design theory and development.
598 Topics in Interior Design V 1-3 May be repeated for credit; cumulative maximum 6 hours.
600 Special Projects Independent Study Variable credit. S, F grading.
700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

School of Architecture


The School of Architecture offers courses of study leading to three baccalaureate degrees. These are Bachelor of Architecture, Bachelor of Science in Construction Management, and Bachelor of Science in Architectural Studies.

The School of Architecture also offers a postprofessional course of study leading to a Master of Science in Architecture which emphasizes design related to the environment, technology and culture.

Most states require that an individual intending to become an architect hold an accredited degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board (NAAB): (1) the Bachelor of Architecture, which requires a minimum of five years of study, and (2) the Master of Architecture, which requires a minimum of three years of study following an unrelated bachelor’s degree or two years following a related pre-professional bachelor’s degree. These professional degrees are structured to educate those who aspire to registration and licensure to practice as architects.

The four-year, pre-professional degree, where offered, is not accredited by NAAB. The pre-professional degree is useful to those wishing a foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment options in fields related to architecture.

Architects are educated to perform professionally in a wide range of design and construction-related areas and assume important roles in the creation of a better built environment. They may work as independent practitioners, for large corporate firms or for governmental organizations. Architects are required to possess a high level of intuitive, analytical, and technical skills, combined with a deep understanding of human values and needs.

The architecture curriculum is planned so that foreign study and other off-campus programs can be incorporated in the fourth and fifth years. Options include a semester in Europe and a year of study in Spokane at WSU Spokane. In Spokane, students will be studying interdisciplinary issues with construction management, interior design and landscape architecture students. Foreign studies options are available to Pullman and Spokane students.

The construction manager is expected to understand and represent a wide variety of structures that make up the built environment. This awareness includes properties of materials and construction systems and how they are utilized to produce buildings. The student in the program is encouraged to develop an inquisitive and inventive mind in order to deal with new construction methods and management techniques. It is also important that the graduate in construction management be knowledgeable in the field of business. Courses offered in a variety of departments are required to assure this breadth of understanding. Construction management students spend their fifth year of study in Spokane at the WSU branch campus.

The School of Architecture is a member of the Association of Collegiate Schools of Architecture and the Associated Schools of Construction. Student chapters of the American Institute of Architects and the Associated General Contractors provide linkages with their professional counterparts. The Bachelor of Architecture degree program is accredited by the National Architectural Accrediting Board. The Bachelor of Science in Construction Management degree program is accredited by the American Council for Construction Education.

General Requirements

1. Due to limitations of space and faculty, enrollment in second-year courses and certification as a major in architecture or construction management can be granted to only the most qualified students. Prospective applicants for these programs are responsible for familiarizing themselves with all requirements and procedures of the School of Architecture.

2. Students who wish to transfer from another institution may find it possible to take some or
all of the first two years elsewhere. See the WSU Transfer Guide and contact the School of Architecture for information.

3. Transfer students and former WSU students must submit an application for admission to the university, a supplemental application to the program, and current academic records to the School of Architecture by the dates listed in this bulletin.

4. Students transferring from another institution into the second or third year of architecture must submit a portfolio in order for the school to evaluate their potential for success in the program. Contact the School of Architecture for portfolio requirements.

5. A student may not normally enroll in 300- or 400-level Arch courses or any Cst M courses without being certified as a major in architecture or construction management.

6. A student may not take courses required by the school on a pass, fail basis.

Degree Program Requirements

BACHELOR OF ARCHITECTURE
(153 HOURS)

✓FYDA (FIVE YEAR AGREEMENT)
The five-year Bachelor of Architecture program is structured into (1) Pre-Architecture consisting of a beginning year of basic education, (2) the Professional Program consisting of three years of basic professional education, and (3) a concluding year of concentrated study and focus. It is advisable that students interested in pursuing architecture should contact the school in order to ensure that current curriculum information is obtained.

Pre-Architecture

Students who enter WSU and have an interest in architecture should obtain an advisor in the School of Architecture through the Student Advising and Learning Center.

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 101</td>
<td>3</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 103</td>
<td>3</td>
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<tr>
<td>Arch 202</td>
<td>3</td>
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<tr>
<td>Cpt S or F A Elective</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] or 206 [N] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

Second-Year Admissions

If the student has completed 54 or more hours of required course work and has completed the second-year architectural program requirements, students may be admitted to the third-year program.

Sophomore Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 201</td>
<td>3</td>
</tr>
<tr>
<td>Arch 207</td>
<td>1</td>
</tr>
<tr>
<td>Arch 220</td>
<td>3</td>
</tr>
<tr>
<td>Arch 330</td>
<td>2</td>
</tr>
<tr>
<td>Cpt S or F A Elective</td>
<td>3</td>
</tr>
<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
<td>4</td>
</tr>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 203</td>
<td>3</td>
</tr>
<tr>
<td>Arch 209</td>
<td>1</td>
</tr>
<tr>
<td>Arch 331</td>
<td>2</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Social [S,K] Sciences (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

Junior Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 301</td>
<td>5</td>
</tr>
<tr>
<td>Arch 307</td>
<td>2</td>
</tr>
<tr>
<td>Arch 324</td>
<td>2</td>
</tr>
<tr>
<td>Arch 351</td>
<td>3</td>
</tr>
<tr>
<td>Arch 353</td>
<td>1</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 303</td>
<td>5</td>
</tr>
<tr>
<td>Arch 309</td>
<td>2</td>
</tr>
<tr>
<td>Arch 352</td>
<td>3</td>
</tr>
<tr>
<td>Arch 354</td>
<td>1</td>
</tr>
<tr>
<td>Arch 423 [M]</td>
<td>2</td>
</tr>
<tr>
<td>Arch 432</td>
<td>3</td>
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Senior Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 401</td>
<td>5</td>
</tr>
<tr>
<td>Arch 407</td>
<td>2</td>
</tr>
<tr>
<td>Arch 433</td>
<td>3</td>
</tr>
<tr>
<td>Arch 434</td>
<td>1</td>
</tr>
<tr>
<td>Arch 461</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td></td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 403</td>
<td>5</td>
</tr>
</tbody>
</table>
Construction management students are required to spend their fifth and final year at the WSU branch campus in Spokane to enhance opportunities for specialized study and increase interaction with professionals in the construction industry.

The degree of Bachelor of Science in Construction Management is for those students who wish to work in the profession of construction management or in a management capacity in other facets of the construction industry.

Upon completion of the Preconstruction Management Program requirements, or their equivalent for transfer students, application must be made for certification into the Construction Management Program. It should be noted that the freshman class of 1997 will be required to purchase a computer after acceptance to the third year. Purchase should be made in conjunction with school requirements. It is the policy of the school to provide support for software and networks.

**PRECONSTRUCTION MANAGEMENT**

**Freshman Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 101</td>
<td>3</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Geol 101 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Intercultural [H,G,K] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Econ 101 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
<td>3</td>
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</table>

**Sophomore Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acctg 230</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>B Law 210</td>
<td>3</td>
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<td>Econ 102 [S] (GER)</td>
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<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
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<tbody>
<tr>
<td>Acctg 231</td>
<td>3</td>
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<tr>
<td>Cpt S 105</td>
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<td>Cpt S 153</td>
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<tr>
<td>Math 201</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

**Certification Requirements:**

The School of Architecture has separate admissions and certification policies and procedures for its different degree programs. Admission to the Construction Management Program will be considered for those who have qualified for admission to WSU and fulfill the requirements outlined below.

The undergraduate Construction Management Program has a one-step screening process leading to certification. The screening takes place between the second- and third-year level when certification is granted and enrollment to 300- and 400-level Arch and Cst M courses is allowed. Note that this limitation is imposed because of limited space, equipment and faculty resources. Students may transfer to the school during the two-year preconstruction program or apply directly for third-year certification.

**Third-Year Admission:**

Every year a maximum of 25 students will be certified and allowed to continue to third year after they successfully pass through the screening process which will take place at the termination of spring semester after grades are received.

The Construction Management Program Coordinator reviews all applications and makes recommendation to the School of Architecture’s Admissions and Academic Affairs Committee regarding applicants. Selection will be made on or about July 15; all applicants will be notified of their status by letter mailed from the School of Architecture as soon as possible thereafter. Successful applicants will also be certified into the Construction Management Program as soon as possible thereafter.

**Course and G.P.A. Requirements for Screening:**

Because the School of Architecture receives more applications from qualified students than can be accommodated, screening for entry into the third year is based on the applicant fulfilling the minimum requirements listed and the applicant’s overall g.p.a.

To be considered for admission, an applicant must:

1. Qualify for admission into Washington State University.
2. Complete the first two years as listed herein under Preconstruction Management.
3. Earn a grade of C or better in Acctg 230, 231, Arch 101, B Law 210, Cpt S 105, 153, Econ 101, 102, Geol 101, Math 171, 201; Phys 101 or 201.
4. Complete and submit, by May 1, an application to the Construction Management Program.

**Applications Requirements and Deadlines:**

Applications are due May 1 for admission and certification into the program at the beginning of the fall semester. Grade records for transfer students for the semester or quarter must be available to the Construction Management Coordinator before July 1.

**CONSTRUCTION MANAGEMENT DEGREE PROGRAM**

**Junior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Arch 330</td>
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<tr>
<td>Arch 351</td>
<td>3</td>
</tr>
<tr>
<td>C E 201</td>
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<tr>
<td>R E 305</td>
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<td>Approved Elective¹</td>
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<td>Elective</td>
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<td>Complete Writing Portfolio</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Second Semester</td>
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<tr>
<td>Arch 331</td>
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<tr>
<td>Arch 352</td>
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<tr>
<td>Arch 432</td>
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<tr>
<td>Cst M 201</td>
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<tr>
<td>Fin 325</td>
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**Senior Year**

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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Arch 332</td>
<td>3</td>
</tr>
<tr>
<td>Arch 433</td>
<td>3</td>
</tr>
<tr>
<td>Arch 461</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 470</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective¹</td>
<td>3</td>
</tr>
</tbody>
</table>

**FYDA (FIVE YEAR AGREEMENT)**

Construction management is a five-year program structured into two years of preconstruction management, two years of construction management, and one year of focused specialized study. Construction management students are required to

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## Description of Courses

### Architecture

#### Arch

**Architectural Design I** 3 (0-6) Prereq Arch 103, Art 201 [W]; 301 [W], or 402 [W] (GER) 3

**Architectural Design II** 3 (0-6) Prereq Arch 103; c// in Arch 307. Introduction of architectural design focusing on environmental and social issues.

**Architectural Design IV** 3 (0-10) Prereq Arch 301; c// in Arch 309. Continuation of study of architectural design/form as influenced by cultural, spiritual and symbolic issues.

**Design Theory III** 2 Prereq certified Arch major; c// in Arch 301. Introduction to design theory relating to environmental and social issues.  
**Design Theory IV** 2 Prereq c// in Arch 303. Continuation of design theory relating to cultural/symbolic issues which influence design decisions.  

### Electives

1. **Approved Electives include:** B Law 410, 411, 450; Dec S 215, 340; Econ 301, 350, 450; Ins 320; Mgt 301; Mktg 360; Psych 306; R E 407, 408, 409. Consult your advisor.

2. **Electives**

### Second Semester Hours

- Arch 462 3
- Cst M 442 [M] 3
- Cst M 455 3
- Engl 201 [W], 301 [W], or 402 [W] (GER) 3
- Approved Elective 3

### Fifth Year (WSU Spokane)

#### First Semester Hours

- Cst M 451 [M] 3
- Cst M 453 3
- Cst M 456 4
- Approved Fifth Year Electives 3
- Electives 2

#### Second Semester Hours

- Cst M 452 4
- Cst M 457 3
- Cst M 471 3
- Cst M 495 3
- Cst M 499 3

### Third Year (WSU Spokane)

#### First Semester Hours

- Arch 462 3
- Cst M 467 3
- Cst M 471 3
- Cst M 495 3
- Cst M 499 3

### Fourth Year (WSU Spokane)

#### First Semester Hours

- Arch 471 3
- Cst M 495 3
- Cst M 499 3

#### Second Semester Hours

- Cst M 491 4
- Cst M 497 3
- Cst M 499 3

### Description of Courses

#### Architecture

**Arch**

1. **Graphics Communication** 3 (0-6) Drawing to perceive three-dimensional space; freehand (architectural) drawing, drafting, isometric and orthographic drawing; perspective, shades and shadows, lettering, and rendering techniques.

2. **Visual Design** 3 (0-6) Prereq Arch 101. Two- and three-dimensional design and spatial studies; abstract studies in form, color and texture; introduction to architectural design processes.

3. **Innovation in Design** 2 Same as M E 120

4. **Architectural Design I** 3 (0-6) Prereq Arch 103, c// in Arch 207. Introduction to architectural design focusing on cultural/symbolic issues.

5. **Architectural Design II** 3 (0-6) Prereq Arch 201, c// in Arch 209. Introduction to architectural design as influenced by building technology, building systems and craft.

6. **Design Theory I** 1 Prereq c// in Arch 201. Introduction to design theory relating to cultural/symbolic issues.

7. **Design Theory II** 1 Prereq c// in Arch 203. Design theory relating to building technology, systems and crafts which influence design decisions.

8. **Architectural History I** 3 Historic development of world architecture from prehistoric to late medieval; social, technical and scientific influences.

9. **Architectural History II** 3 Development of American architecture; cave dwellings, native American architecture, colonial styles to contemporary architecture; effects of European styles upon America.

10. **Architectural History III** 5 (0-10) Prereq certified Arch major; c// in Arch 307. Introduction of architectural design focusing on environmental and social issues.

11. **Architectural Design IV** 3 (0-10) Prereq Arch 301; c// in Arch 309. Continuation of study of architectural design/form as influenced by cultural, spiritual and symbolic issues.

12. **Design Theory III** 2 Prereq certified Arch major; c// in Arch 301. Introduction to design theory relating to environmental and social issues.

13. **Design Theory IV** 2 Prereq c// in Arch 303. Continuation of design theory relating to cultural/symbolic issues which influence design decisions.

14. **Renaissance to Baroque Architecture** 2 Western architecture from the Renaissance to Baroque to pioneers of modern architecture.

15. **Materials and Construction I** 2 Wood and masonry materials and construction systems; timber frame and bearing wall construction; other uses of wood and masonry.

16. **Materials and Construction II** 2 Prereq Arch 330. Continuation of Arch 330. Concrete and metal materials and construction systems; foundation, framing and roof systems.

17. **Materials and Construction III** 3 (2-3) Prereq major in Arch or Cst M. Theory and application of various construction systems and material applications.

18. **Computers in Architecture** 2 (1-3) Prereq certified major in Arch or Cst M. Introduction to computers, terminology, and software applicable to the field of architecture.

19. **Architectural Structures I** 3 Prereq major in Arch or Cst M. Introduction to statics and mechanics; analysis and design of statically determinate architectural structures using timber, steel, and reinforced concrete systems.

20. **Architectural Structures II** 3 Prereq Arch 351. Continuation of Arch 351.

21. **Architectural Structures Lab I** 1 (0-2) Prereq Arch 351. Design principles of architectural structures systems; available systems for spanning and enclosing architectural space.

22. **Architectural Structures Lab II** 1 (0-2) Prereq Arch 352 or c//. Continuation of Arch 353.

23. **Reading Examination** 1.3-3 Prereq major in Arch or Cst M. Examination of summer reading from lists prepared by the school.

24. **Architectural Design V** 5 (0-10) Prereq Arch 303; c// in Arch 407. Advanced architectural design focusing on technology, systems and crafts of buildings.

25. **Architectural Design VI** 5 (0-10) Prereq Arch 401; c// in Arch 409. Advanced study of architectural design/form as influenced by social and environmental issues applied to large-scale developments.


27. **Design Theory VI** 2 Prereq c// in Arch 403. Advanced design theory relating to social and environmental issues which influence housing design.

28. **Architectural Design VII** 6 (0-12) Prereq Arch 403. Comprehensive building design incorporating programming, space planning, interiors, site planning and landscaping.

29. **Architectural Design VIII** 6 (0-12) Prereq Arch 411, 415. In-depth study of architectural design problems; thesis relating to architectural project selected by student and approved by faculty.

30. **Programming and Decision Theory** 3 Process of data collection, analysis and synthesis including cost management, organization, preparation and presentation of a program.

31. **Twentieth Century Architecture** 2 Prereq Arch 324. History from the modern movement to today; principles of architectural design demonstrated in the work of 20th century architects.

32. **Historic Preservation** 2 Prereq major in Arch or Cst M. Theory and practice of architectural and urban conservation; description, evaluation and survey; restoration, rehabilitation, adaptive re-use; historic districts; benefits and incentives.

33. **Environmental Control of Buildings** 3 (2-2) Mechanical systems for buildings; building heating, ventilating, and air conditioning systems, heat flow concepts.

34. **Environmental Control of Buildings II** 3 (2-2) Prereq Arch 432. Water supply, drainage, electrical and lighting systems for buildings.

35. **Acoustics** 1 Prereq major in Arch or Cst M. Sound theory, control, acoustics, and reinforcement systems as applied to architectural problems.


37. **Deborah and Computers** 2 (1-2) (1-4) Prereq Arch 303, 423. Design theory and methods of energy and resource conservation in architecture through the use of daylight modeling and computers.

38. **Lighting Design** 3 Prereq Arch 432. Engineering and aesthetics of lighting design for buildings; case studies, field trip, studio design exercises.

39. **Theory of Urban Design and Development** 3 Prereq major in Arch, Cst M, business or public administration. History, principles and theories of the physical design and development of cities.

40. **Architectural Animation** 3 (1-4) Prereq certified Arch major, Cpt S 150 or 205. Introduction to computer animation production, building simulation and related CAD modeling techniques.

41. **Computer-aided Design** 2 (1-2) Prereq basic computer course. Science and art of architectural computer-aided design for design discipline students.

42. **Computer-aided Design II** 2 (1-2) Prereq basic computer course. Continuation of Arch 451.

43. **Field Sketching/Journal Keeping** 3 (2-2) Prereq junior standing. Field-sketching/journal-keeping strategies to facilitate investigation and comprehension of the built environment.
520 Directed Topics in Architecture V 1-3 May be repeated for credit; cumulative maximum 6 hours. Topics related to areas of emphasis in the program and student specialization.

540 History and Theory of Design Issues in Architecture 3 Advanced study of history and theory of architecture relating to environmental, cultural, and technological design issues.

546 Computer Animation 3 May be repeated for credit; cumulative maximum 9 hours. Prereq Arch 446 or Cpt S 446; by interview only. Advanced computer animation techniques; advanced specialization in building/design simulation, dynamic modeling and visualization, engineering animation.

570 Advanced Architectural Studio/Laboratory 6 (0-12) In-depth study of design problems relating to cultural, environmental, technological and other issues as related to the student’s area of emphasis.

580 Architecture Internship V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Arch or Cst M. Placement in an approved industrial, professional, or governmental situation for specialized or general experience.

490 Seminar in Architectural Design V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Arch. Advanced study in architectural design. Cooperative course taught by WSU, open to UI students (Arch 490).

491 Seminar in Architectural Communications V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Arch. Advanced study in graphic communication.

492 Seminar in Architectural History V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Arch. Advanced study in architectural history.

493 Seminar in Environmental Control V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Arch or Cst M. Advanced study in environmental control of buildings.

494 Seminar in Urban and Regional Planning V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq Arch 342. Advanced study in urban and regional planning.

495 Seminar in Construction Management V 1-4 May be repeated for credit; cumulative maximum 4 hours. Advanced study in construction practice management.

496 Seminar in Computer Applications V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq Cpt S 151, 153, 154, or 203. Architectural and construction applications of computer graphics, management, computer-aided design.

497 Seminar in Professional Practice V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq senior in Arch. Advanced study in architectural practice management.

498 Seminar in Architectural Structures V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq Arch 301, 351 or c/c. Advanced study in architectural structures systems.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Research Methods 2 Research methods in architecture and design disciplines; theory and methodology of research including historical survey, experimental systems and design process.
<table>
<thead>
<tr>
<th>Year</th>
<th>Hours</th>
<th>1st Semester Hours</th>
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</thead>
<tbody>
<tr>
<td>Sophomore Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia 275</td>
<td>3</td>
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<tr>
<td>Biological Sciences [B]  (GER)</td>
<td>4</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Sciences [S.K] (GER)</td>
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**Junior Year**

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<tr>
<td>Foreign Language Elective</td>
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<td>Major Coursework</td>
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**Senior Year**

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</thead>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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</tr>
<tr>
<td>Major Coursework or Electives</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

**Second Semester Hours**

| Tier III Capstone (GER) | 3 |
| Electives | 11 |

1 Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and 1-credit Science Elective.
2 16 hours of an appropriate language are required.
3 A minimum of 40 hours (46 for comprehensive option) in one of the following options, including two Writing in the Major [M] courses:
   - China: Asia 270, 272, 275, 315 [M], 373, 374, 476, Asia electives.
   - Japan: Asia 270, 272, 275, 315 [M], 374, 436, 477, Asia electives.
   - South Asia: Asia 270, 272, 273, 275, 314 [M], 370, 470 [M], Asia electives.
   - Comprehensive: Asia 270, 272, 273, 275, 370, 373, 374, 470 [M], 472 [M], 476.
   - Students should consult their advisor to determine when courses are offered.
4 Or relevant 300-400-level courses not mentioned which may be counted toward a major or minor if approved by the Director of the Asia Program.

**Description of Courses**

Asia

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>270 [K]</td>
<td>Introduction to South Asian Culture</td>
<td>3</td>
</tr>
<tr>
<td>271 [I]</td>
<td>Introduction to Middle Eastern History</td>
<td>3</td>
</tr>
<tr>
<td>273 [G]</td>
<td>Foundations of Islamic Civilization</td>
<td>3</td>
</tr>
<tr>
<td>275 [K]</td>
<td>Introduction to East Asian Culture</td>
<td>3</td>
</tr>
<tr>
<td>306</td>
<td>Cultures and Peoples of the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>314 [G]</td>
<td>Philosophies and Religions of India</td>
<td>3</td>
</tr>
<tr>
<td>315 [G]</td>
<td>Philosophies and Religions of China</td>
<td>3</td>
</tr>
<tr>
<td>370</td>
<td>Civilization of Classical India</td>
<td>3</td>
</tr>
<tr>
<td>373 [G]</td>
<td>Chinese Civilization</td>
<td>3</td>
</tr>
<tr>
<td>374 [I]</td>
<td>Japanese Civilization</td>
<td>3</td>
</tr>
<tr>
<td>387</td>
<td>World War II in Asia and the Pacific</td>
<td>3</td>
</tr>
<tr>
<td>435</td>
<td>Politics of Developing Nations</td>
<td>3</td>
</tr>
<tr>
<td>436</td>
<td>Politics in Japan</td>
<td>3</td>
</tr>
<tr>
<td>472 [M]</td>
<td>20th Century Middle East</td>
<td>3</td>
</tr>
<tr>
<td>476</td>
<td>Revolutionary China, 1800 to Present</td>
<td>3</td>
</tr>
<tr>
<td>477</td>
<td>Modern Japanese History</td>
<td>3</td>
</tr>
</tbody>
</table>

**Special Problems**

V 1-4 May be repeated for credit. S, F grading.

**Topics in Modern Astrophysics**

3 May be repeated for credit; cumulative maximum 9 hours. Prereq Math 315, Phys 202. Problems of current astrophysical interest in the areas of stellar atmospheres, stellar interiors, gaseous nebulae, the interstellar medium and galaxies.

**Special Projects or Independent Study**

Variable credit. S, F grading.

**Department of Biochemistry and Biophysics**


Biochemistry and biophysics are interdisciplinary sciences that involve the application of methods and theories of chemistry and physics to the study of biological phenomena. A major in biochemistry prepares you for a variety of careers in industry, education, public service, and the health professions, or for graduate study and research in biochemistry, biophysics, molecular biology, and many related fields.

Members of the department are all active in research and have wide-ranging interests that include gene regulation, molecular biology in animals, plants and microorganisms, enzymatic reaction mechanisms, signal transduction, protein export, DNA repair, reproductive biology, protein-DNA interactions, plant biochemistry, and structural bi-
Degree Program Requirements

The department offers two program options leading to the B.S. degree in Biochemistry. One is the general biochemistry option which provides balanced training in biochemistry and biophysics. The second is the molecular biology option which provides increased emphasis on cell biology and molecular genetics.

At least 40 of the total hours required for the bachelor’s degree in these degree programs must be in 300–400-level courses. Students participating in the Four-Year Degree Agreement must declare their major before their third semester and complete BC/BP 364 plus 6 additional hours of biochemistry/biophysics, 2 hours of which must include laboratory courses. BC/BP 463 plus 464 may be used to satisfy the requirement for 10 hours of biochemistry/biophysics.

Along with the graduate faculty of genetics and cell biology and microbiology, the department administers a minor in molecular biology, listed separately in this catalog.

GENERAL BIOCHEMISTRY DEGREE PROGRAM (120 HOURS) ✔FYDA

Freshman Year

First Semester Hours
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 171 [N] (GER) 4

Second Semester Hours
Bio S 103 [B] (GER) 4
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 174 4

Sophomore Year

First Semester Hours
Arts & Humanities [H,G] (GER) 3
Bio S 104 [B] (GER) 4
Chem 340 3
Chem 341 2
Phys 201 [P] (GER) 4

Second Semester Hours
Chem 342 3
GenCB 301 4
Phys 202 [P] (GER) 4
Social Sciences [S,K] (GER) 3

Junior Year

First Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
BC/BP 364 4

Second Semester Hours
Bio S Elective 3
Chem 220 2
Chem 222 2
Complete Writing Portfolio

Second Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
BC/BP 472 3
BC/BP 482 [M] 2
Engl 201 3
Science Elective 3

Senior Year

First Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
BC/BP 378 3
BC/BP 463 3
BC/BP 496 3
Elective 3

Second Semester Hours
BC/BP 464 3
Intercultural [I,G,K] (GER) 3
Micro 464 3
Tier III Capstone (GER) 3
Electives 3

MOLECULAR BIOLOGY DEGREE PROGRAM (121 HOURS) ✔FYDA

Freshman Year

First Semester Hours
Bio S 103 [B] (GER) 4
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 111 [A] (GER) 3
Math 140 4

Second Semester Hours
Bio S 104 [B] (GER) 4
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 140 4

Sophomore Year

First Semester Hours
Arts & Humanities [H,G] (GER) 3
Chem 340 3
Chem 341 2
GenCB 301 4
Phys 101 [P] (GER) 4

Second Semester Hours
BC/BP 364 4
Chem 342 3
Chem 343 2
Phys 102 [P] (GER) 4
Social Sciences [S,K] (GER) 3

Junior Year

First Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Engl 201 3
BC/BP 398 [M] 1
Elective 3
Chem 220 2
Chem 222 2
Complete Writing Portfolio

Second Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
BC/BP 472 3
GenCB 450 3
Micro 301 4
Elective 3

Senior Year

First Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
BC/BP 378 3
BC/BP 463 3
BC/BP 496 3
Elective 3

Second Semester Hours
BC/BP 464 3
Intercultural [I,G,K] (GER) 3
Micro 464 3
Tier III Capstone (GER) 3
Electives 3

Description of Courses

Biochemistry/Biophysics

BC/BP 312 [M] Cell and Molecular Laboratory 2 (0-6) Same as GenCB 312.

364 Introductory Biochemistry 4 Prereq Chem 106; Chem 240 or 340. Modern biochemistry for undergraduates in the biological sciences. Cooperative course taught by WSU, open to UI students (Biochem 380).

366 Introductory Biochemistry Laboratory 1 (0-3) Prereq BC/BP 364 or c/l. Basic biochemical techniques.

378 Introduction to Molecular Biology Computer Techniques 3 (1-6) Prereq BC/BP 364, GenCB 301. Computer analysis of protein and nucleic acid sequences, molecular visualization and modeling, sequence and structure databases.

398 [M] Undergraduate Seminar 1 Prereq junior standing. Opportunities in biochemistry, biophysics and molecular biology.

463 General Biochemistry 3 Prereq Chem 220, 222, 342; junior standing. Protein structure and function; enzyme catalysis; nucleic acid structure and function; biochemical methodology; molecular biology.

464 General Biochemistry 3 Prereq BC/BP 463. Metabolism of carbohydrates, proteins, fats, bioenergetics; photosynthesis; control of metabolic processes.

472 Principles of Biophysical Chemistry 3 Prereq BC/BP 364; Math 140 or 171; Phys 102 or 202. Biochemical reactions and processes, molecular recognition, coupled reactions, enzyme catalysis, analysis of macromolecular structure by electron microscopy, sedimentation, viscosity, and spectroscopy.

482 [M] Biophysical Chemistry Laboratory 2 (0-6) Prereq BC/BP 472 or c/l. Laboratory experiments illustrating physical chemical principles with particular application to life sciences.

495 Directed Research V 1 (0-3) to 3 (0-9) May be repeated for credit. Prereq BC/BP 364 or c/l. Introduction to laboratory research.
Department of Biological Systems Engineering

Associate Professor and Chair, R. P. Cavaliere; Professors, K. B. Campbell, D. C. Davis, R. G. Evans, R. E. Hernandez, G. M. Hyde, L. G. James, L. G. King; Associate Professors, G. V. Barbosa-Cánovas, M. D. Kleene, T. W. Ley, M. J. Pitts, C. O. Stockle, W. R. Symons; Assistant Professors, S. Chen, M. K. Swarn, J. Tung; Instructor, J. E. Durfey; Adjunct Professors, D. K. McCoil, K. E. Saxton; Emeriti Faculty, D. L. Bassett, J. G. Cvaencara, J. E. George, C. L. Nelson, C. A. Petibone, A. E. Powell, J. B. Simpson, H. Waelti.

BIOLOGICAL SYSTEMS ENGINEERING

Biological systems engineers design technological solutions to problems in systems that involve plants, humans and other animals, micro-organisms and biological materials. They produce creative and effective solutions to problems facing the environment, our food supply, and all types of living organisms. Using their technical knowledge and the engineering design process, they are able to design systems that improve the well-being of people, plants, animals and other living organisms and create new products through efficient, yet environmentally sound, use of our biological resources.

The biological systems engineering curriculum prepares graduates who are uniquely qualified to apply engineering methods to biologically based systems. The schedule of studies provides students an early introduction to biological systems engineering, including design, and continues to expand that understanding and design experience throughout the four years of study. Students gain computer experience from the first semester and build capabilities for biological system analysis in each subsequent year. The BSysE 110, 210, 310, 311, 411 sequence provides a central core in design that is coupled to the engineering, biological, chemical and physical sciences, communications, societal awareness, professionalism and ethics. This curriculum is unique in that it yields a professional engineering baccalaureate degree that can satisfy pre-veterinary, pre-medical and pre-dentistry requirements.

Students are offered flexibility in selection of an area of emphasis within biological systems engineering. Areas of emphasis currently available are (1) agricultural engineering, (2) bio-material processing, plant and animal environmental systems. Advanced engineering design electives build on the background in biological systems engineering design and related technical biological science electives to provide depth in the selected area of emphasis.

This new professional curriculum, leading to the Bachelor of Science degree in Biological Systems Engineering, is accredited by the Accreditation Board for Engineering and Technology. Enroll-ment in the 300-400-level curriculum is restricted to certified majors. Requirements for certification are available from the department.

The Department of Biological Systems Engineering also participates in the College of Engineering and Architecture’s programs leading to the degrees of Master of Science in Engineering and Doctor of Philosophy (Engineering Science).

Degree Program Requirements

The Bachelor of Science degree in Biological Systems Engineering requires a minimum of 128 semester hours. At least 45 of the total hours required for the bachelor’s degree in this program must be 300-400-level courses.

BIOLOGICAL SYSTEMS ENGINEERING

DEGREE PROGRAM (128 HOURS) • FYDA

Freshman Year

First Semester

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tr>
<td>BSysE 110</td>
<td>General Biochemistry</td>
<td>4</td>
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<tr>
<td>Chem 105 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math 171 [N] (GER)</td>
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Second Semester

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Bio S 103 [B] (GER)</td>
<td>4</td>
<td></td>
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<tr>
<td>Chem 106 [P] (GER)</td>
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<tr>
<td>Cpt S 203</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<td>Math 172</td>
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Sophomore Year

First Semester

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<tr>
<td>C E 213</td>
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<tr>
<td>Econ 101 [S] or 102 [S] (GER)</td>
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<tr>
<td>Math 273</td>
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<tr>
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Second Semester

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Junior Year

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Transfer Students

Students who plan to transfer to biological systems engineering at Washington State University from other institutions should coordinate their programs early with the department to select courses that will be applicable to degree requirements. A strong preparation in mathematics, physics, biology, and chemistry and proper selection of electives will minimize the time required to complete bachelor’s degree requirements.

Description of Courses

Biological Systems Engineering

BSysE

110 Engineering Living Systems 2 (1-3) Engineering design of living systems; social factors influencing design; computer-based engineering tools.

210 Biological Systems Analysis and Design 3 (2-3) Prereq Bio S 103, Chem 105; Cpt S 153 or 203. Application of computer-assisted tools for the engineering analysis and design of biological systems.

310 Biological Dynamics for System Design 3 (2-3) Prereq BSysE 210. Understanding and application of dynamic computer simulation models for the analysis and design of biological systems. Cooperative course taught jointly by WSU and UI (AgE 310)

311 (410) [M] Project Design I 3 Prereq BSysE 210. Technical, professional, ethical, social, economic issues in engineering design.

339 Perspectives in Biomedical Engineering 1 May be repeated for credit; cumulative maximum 3 hours. Prereq BSysE 210 or c/. Seminar on current issues in biomedical engineering; career options in biomedical engineering. S, F grading.

351 Environmental Hydrology 3 Prereq Math 140, 171, 202, or 206. Hydrologic cycle; commonly used methods for analysis of components of the cycle; importance of hydrology to the environment. Cooperative course taught by WSU, open to UI students (AgE 353). Credit not granted for both BSysE 351 and 353.

352 Introduction to Soil and Water Engineering 3 (2-3) Prereq BSysE 351, C E 315, SoilS 201. Fundamentals of soil and water engineering; agricultural hydrology and hydraulics, erosion control, and water quality. Cooperative course taught by UI (AgE 352), open to WSU students.

353 (351) Hydrology 3 Prereq one semester of calculus. Analysis of precipitation and runoff events; principles of climatology, evaporation, infiltration, and snowmelt. Credit not granted for both BSysE 351 and 353. Cooperative course taught by UI (AgE 351), open to WSU students.

362 Agricultural Power and Machinery 3 (2-3) Prereq M E 301 or c/. Performance, operation, and testing of agricultural power units and machinery, functional requirements, force analysis, power transmission, safety, and economics. Cooperative course taught by UI (AgE 372), open to WSU students.

380 Electric Power and Controls 3 (2-3) Prereq E E 304. Design and on-farm use of electric equipment and systems; design of electronic control systems for agricultural applications. Cooperative course taught by UI (AgE 462), open to WSU students.

398 Undergraduate Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Prereq BSysE 210 or c/. Presentations and discussions of selected topics by students, faculty, and invited speakers. S, F grading.

411 Project Design II 3 (1-6) Prereq BSysE 311 or c/. Detailed design of a biological engineering-related process, machine, structure, or system.

420 Capstone Engineering Design 3 (1-6) Same as M E 420.

430 Physiological Dynamics and Control 3 (2-3) Prereq BSysE 310; Ch E 441, E E 489 or M E 481; Zool 353. Interactions between cells, organs, and whole organisms; physiological and engineering design structures, especially in prostheses.

441 Process Control 3 Same as Ch E 441.

452 Eco-environmental Engineering Design 3 (2-3) Prereq junior standing. Engineering design to monitor, evaluate, and minimize non-point pollution from agriculture, environmentally acceptable disposal of wastes; bioremediation. Cooperative course taught jointly by WSU and UI (AgE 452).

453 Irrigation and Drainage System Design 3 (2-3) Prereq junior standing. Crop water requirements, irrigation scheduling and water management, selection and design of irrigation systems; pump selection. Cooperative course taught by UI (AgE 456), open to WSU students.

457 Design for Watershed Management 3 (2-3) Prereq junior standing. Modeling water movement and mass transport; design for balance between animal, plant, soil, water, and air resources in watershed. Cooperative course taught by WSU, open to UI students (BSyE 457).

461 Agricultural Processing and Environment 3 Prereq BSysE 210, C E 315, M E 301 or c/. Materials handling and processing, psychometrics, heat and mass transfer, pumps and fans, refrigeration, agricultural environments, waste management. Cooperative course taught jointly by WSU and UI (AgE 461).

462 Systems in Integrated Crop Management 3 (2-3) Same as Entom 462.

472 Design of Agricultural Structures 3 (2-3) Prereq C E 213. Design of timber, steel, and reinforced concrete members and connections for agricultural structures. Cooperative course taught by UI (AgE 449), open to WSU students.

474 Fluid Power and Control Systems 3 (2-3) Circuit components; circuit design and testing; agricultural applications. Credit not granted for both BSysE 474 and 574. Cooperative course taught by UI (AgE 474), open to WSU students.

481 (386) [M] Engineering Properties of Biological Materials 3 (2-3) Prereq BSysE 310 or c/. C E 213; 315 or Ch E 332. Composition of biological materials, mechanical and thermal properties, chemical and biological changes. Cooperative course taught by WSU, open to UI students (BSyE 386).

482 Food Process Engineering Design 3 Prereq BSysE 481 or Ch E 330. Design of food processing systems; design and simulation of sterilization and pasteurization processes in foods. Credit not granted for both BSysE 482 and 582. Cooperative course taught by WSU, open to UI students (AgE 487).

483 Food Separation Processes Design 3 Prereq BSysE 482. Design of food separation unit operations including concentration, dehydration, and membrane processes. Credit not granted for both BSysE 483 and 583. Cooperative course taught by WSU, open to UI students (BSyE 483).

486 Food Rheology 3 (2-3) Prereq BSysE 481. Principles and applications of the rheology of foods, including fundamental and empirical equations; viscoelasticity; normal forces, time dependency and instrumentation. Credit not granted for both BSysE 486 and 586. Cooperative course taught by WSU, open to UI students (BSyE 486).

487 Food Plant Design 3 Prereq BSysE 482. Preliminary design of food processing plants, including engineering principles, equipment selection, economic analysis, and regulatory aspects. Cooperative course taught by WSU, open to UI students (BSyE 487).

488 Food Powders 3 Engineering principles applied to handling and processing of food powders, including particle size distribution, morphology, physical properties, agglomeration, attrition, segregation. Credit not granted for both BSysE 488 and 588. Cooperative course taught by WSU, open to UI students (BSyE 488).

491 Advanced Topics V 1-3 May be repeated for credit; cumulative maximum 8 hours. Prereq junior standing.

495 Internship in Biological Systems Engineering V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq sophomore standing. Prior approval of supervisor and advisor required. Work experience related to academic learning. S, F grading.
Conservation Engineering 3 (2-3) Prereq BSysE 452. Predicting occurrence and disposition of water on agricultural watersheds; hydrologic modeling; erosion processes; control structures and methods; construction practices. Credit not granted for both BSysE 496 and 596. Cooperative course taught by WSU, open to UI students (AgE 496).

Special Problems V 1-4 May be repeated for credit. S, F grading

Fundamentals of Research 3 Prereq graduate standing. The research process and the graduate research project; objectives, techniques, and challenges; scientific method and the design process; use of literature; creativity; writing and speaking about research; preparation of a research proposal. Cooperative course taught by UI (For 510), open to WSU students.

Instrumentation and Measurements 3 (2-3) Prereq Math 172; Phys 102 or 202. Instrumentation systems and measurement concepts, electronic signal-conditioning components and circuitry, digital electronics and microprocessor basics. Cooperative course taught by UI (AgE 541), open to WSU students.

Advanced Hydrology 3 Principles of the hydrologic cycle in mountainous areas, including precipitation, snowmelt and systems simulation. Cooperative course taught by UI (AgE 551), open to WSU students.

Advanced Biological Systems Engineering Topics V 1-4 May be repeated for credit; cumulative maximum 6 hours. Directed group study of selected advanced topics in biological systems engineering. Cooperative course taught by WSU, open to UI students (AgE 561).

Advanced Biological Systems Engineering Topics V 1-4 May be repeated for credit. Directed group study of selected advanced topics in biological systems engineering. Cooperative course taught by WSU, open to UI students (AgE 561).

Fluid Mechanics of Porous Materials 3 Statics and dynamics of multi-flow systems in porous materials, properties of porous materials; steady and unsteady flow. Cooperative course taught by UI (AgE 558), open to WSU students.

Systems in Integrated Crop Management 3 (2-3) Same as Entom 562.

Constructed Wetlands for Pollution Control 2 Prereq graduate standing. Application of constructed wetlands for pollution control; design procedures. Cooperative course taught by WSU, open to UI students (BSysE 566).

Fluid Power and Control Systems 3 (2-3) Graduate-level counterpart of BSysE 474; additional requirements. Credit not granted for both BSysE 474 and 574. Cooperative course taught by UI (AgE 574), open to WSU students.

Advanced Physical Properties of Foods 3 Prereq BSysE 481, Math 315. Analysis, modeling, and experimental procedures to measure food physical properties for use in food processing system design.

Food Process Engineering Design 3 Graduate-level counterpart of BSysE 482; additional requirements. Credit not granted for both BSysE 482 and 582. Cooperative course taught by WSU, open to UI students (AgE 582).

Food Separation Processes Design 3 Graduate-level counterpart of BSysE 483; additional requirements. Credit not granted for both BSysE 483 and 583.

Food Rheology 3 (2-3) Graduate-level counterpart of BSysE 486; additional requirements. Credit not granted for both BSysE 486 and 586. Cooperative course taught by WSU, open to UI students (AgE 586).

Food Plant Design 3 Graduate-level counterpart of BSysE 487; additional requirements. Credit not granted for both BSysE 487 and 587. Cooperative course taught by WSU, open to UI students (FST 587).

Food Powders 3 Graduate-level counterpart of BSysE 488; additional requirements. Credit not granted for both BSysE 488 and 588. Cooperative course taught by WSU, open to UI students (AgE 588).

Food Quality Instrumentation 3 (2-3) Instrumentation used in food quality assessment; classification of assessment techniques by product properties and evaluation methods. Cooperative course taught by WSU, open to UI students (AgE 589).

Advanced Theory of Irrigation Water Requirement 3 Energy balance and consumptive use of water; influence on farm and project irrigation system design criteria, management, and efficiencies. Cooperative course taught by WSU, open to UI students (AgE 552).

Advanced Theory and Design of Irrigation Systems 3 (2-3) Prereq BSysE 453 or 590. Design and development of irrigation water application systems. Cooperative course taught by WSU, open to UI students (BSyE 553).

Drainage Engineering 3 (2-3) Prereq BSysE 352 or 453. Engineering principles applied to surface and subsurface drainage problems; investigation, design, materials, and construction of drainage systems. Cooperative course taught by WSU, open to UI students (AgE 593).

Conservation Engineering 3 (2-3) Graduate-level counterpart of BSysE 496; additional requirements. Credit not granted for both BSysE 496 and 596. Cooperative course taught by WSU, open to UI students (AgE 596).

Graduate Seminar 1 May be repeated for credit. Required of all graduate students in biological systems engineering. S, F grading.

Special Projects or Independent Study Variable credit. S, F grading.

Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

Master’s Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

Doctoral Research, Dissertation, and/or Examination Variable credit. (For PhD in engineering science only.) S, F grading.

Agricultural Technology and Management

The Department of Biological Systems Engineering prepares students in agricultural technology and management for the application of technology to operations or management in agriculture. The areas of application are: farming operations, services, management of agriculturally oriented businesses, sales, and promotional work in agricultural communities.

Emphasis is placed upon the practical application of technology to agricultural enterprises. This prepares students to own, operate, and manage their own enterprises or provide services for private or governmental entities.

Agricultural Technology and Management Degree Program (122 Hours)

Degree Program Requirements

The Bachelor of Science degree in Agricultural Technology and Management requires a minimum of 122 credit hours for graduation. Of these, at least 40 hours including 12 hours of Ag electives must be courses numbered 300 or above.

AGRICULTURAL TECHNOLOGY AND MANAGEMENT DEGREE PROGRAM (122 HOURS)

Freshman Year

First Semester

Ag or AgTM Elective 3
AgTM 110 1
Chem 101 [P] (GER) 4
Engl 101 [W] (GER) 3
Math 107 or 201 3

Second Semester

Ag or AgTM Elective 3
Arts & Humanities [H,G] (GER) 3
Chem 102 [P] (GER) 4
GenEd 110 [A] or 111 [A] (GER) 3
Math 202 [N] (GER) 3

Sophomore Year

First Semester

Bio S 103 [B] (GER) 4
Chem 240 or Phys 101 [P] (GER) 4
Cpt S 105 4
GenEd 110 [A] or 111 [A] (GER) 3

Second Semester

Acctg 230 3
Ag Ec 201 [S] (GER) 3
Ag or AgTM Elective 3
Bio S 104 [B] or Bot 120 [B] (GER) 4
Communication [C,W] (GER) 3

Junior Year

First Semester

S 300-400-level Ag or Business Elective1 3
S 300-400-level Ag or Business Elective2 3
AgTM 312 3
AgTM 331 3
AgTM 451 1
SoilS 201 3
Complete Writing Portfolio

Second Semester

S 300-400-level Ag or Business Elective3 3
Ag Ec 335 or Mgt 301 3
AgTM 306 3
Arts & Humanities [H,G] or Social Science [S,K] (GER) 3
Dec S 215 or Stat 212 4

Senior Year

First Semester

S 300-400-level Ag Ec or Business Elective4 3

1. May be repeated for credit.
2. A wide variety of agricultural technology and technical management courses is available to nonmajors in support of programs in other departments. Many courses can be used as electives by students who wish to explore the field or to use the information for other personal reasons.
3. The department also offers a minor in Agricultural Technology and Management.
# General Agriculture Degree Program (121 Hours)  

General agriculture is designed for students who wish to prepare for careers requiring broad training in agriculture. A maximum number of electives is permitted to enable the student to emphasize one or two fields, or otherwise to tailor the curriculum to fit particular needs. Students desiring to qualify as conservationists in the Natural Resources Conservation Service should have 12 hours of soils. To qualify as soil scientists, a total of 15 hours in soils is required. SoilS 201, 301, 413, 421, and 451 are recommended.

## Freshman Year

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## Sophomore Year

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# Agriculture Education Degree Program (134 Hours)  

The agricultural education major prepares students to teach high school agriculture. A minimum of 46 hours in agricultural sciences is required for graduation.

This course of study leads to the degree of Bachelor of Science in Agriculture. The program includes minimum requirements for initial teacher certification.

At least 40 of the total hours required for this degree must be in 300-400-level courses, with at least 20 hours in agriculture. Students electing a major in agricultural education must complete at least 6 hours in Communication Proficiency, 3 hours in Arts and Humanities, 6 hours in Social Sciences, 3 hours in Mathematics, 8 hours in Biological Sciences, 8 hours in Physical Sciences, 41 hours in professional education. The program requires a minimum of 134 semester hours for graduation. Students must take all core agriculture courses plus 15 additional credits in agriculture from the College of Agriculture and Home Economics. Students must also meet the College of Education certification requirements for general certification for entry into the program.

## Freshman Year

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# Agricultural Communications--Broadcast and Print Media Degree Programs

A major in agricultural communications is offered in cooperation with the School of Communication. Students declaring this major must complete the requirements of the general agriculture curriculum and earn a minimum of 30 hours in the School of Communication, including any communications courses used to satisfy general agriculture requirements. Those electing this major should make

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¹ Students must take all core agriculture courses plus 16 additional credits in technical agriculture from the College of Agriculture and Home Economics. (Student teaching requires Ag Ed 407 and T & L 415.) This program of study meets the Science and Society Area of Coherence requirement.
known that decision as early as possible in their academic career.
A total of 46 agriculture credits are required. 15 credits must be from one department and 9 credits from another department. Both the Broadcast Media and Print Media programs of study meet the Science and Society Area of Coherence requirement.

### FIRST AND SECOND YEAR REQUIREMENTS

Requirements for the first two years are common to both degree programs:

#### Freshman Year

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#### Broadcast Media Degree Program (131 Hours) FYDA

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<th>Semester</th>
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<tr>
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<td>Pr Practicum</td>
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<td>P R 412</td>
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<tr>
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<td>Tier III Capstone (GER)</td>
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#### Agricultural Technology and Management

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>110</td>
<td>Introduction to Agricultural Technology and Management 1 For freshmen. Basic skills for analyzing, solving, and presenting problems in modern agriculture.</td>
</tr>
<tr>
<td>201</td>
<td>Metal Fabrication 3 (1-6) Theory, applications, and practices of welding, machining, and associated techniques in fabricating with metals.</td>
</tr>
<tr>
<td>203-204</td>
<td>Agricultural Structures 3-2 Principles and practices in farm building construction; foundations, frames, materials, tools and plans; experience with tools and materials. Cooperative course taught by WSU; open to UI students (ASM 203).</td>
</tr>
</tbody>
</table>

#### Agricultural Machinery Systems 3 (2-3) Principles, materials of construction, care, capacity of tillage, planting, spraying, harvesting, and materials handling machinery. Cooperative course taught jointly by WSU and UI (ASM 305).
Department of Biological Systems Engineering

426 Energy Concepts in Agricultural Structures 3 (2-3) Prereq AgTM 203. Basic concepts of psychrometrics, temperature-moisture relationships, heat transfer, and energy management in agricultural structures. Credit not granted for both AgTM 426 and 526.

433 [M] Agricultural Processing 3 Rec Math 140 or 202; Phys 101. Principles of heat transfer, steam, air-vapor mixtures, refrigeration and fluid flow as applied to commodity processing and storage. Cooperative course taught by WSU, open to UI students (ASM 433).

434 Agricultural Processing Laboratory 1 (0-3) Rec AgTM 433 or c/l. Experiments in heat transfer, fluid flow and dehydration. Cooperative course taught by WSU, open to UI students (FST 434).

435 Instrumentation for Data Acquisition in Agriculture 3 (2-3) Prereq AgTM 331 or c/l. Agricultural applications of instrumentation and measurement principles; the use of microcomputers for data acquisition, data analysis, and control applications. Credit not granted for both AgTM 435 and 535. Cooperative course taught by WSU, open to UI students (ASM 435).

451 Seminar 1 May be repeated for credit; cumulative maximum 2 hours. Prereq junior standing. Readings and interviews, research, and oral presentation of professional subjects.

453 Agricultural Waste Management 2 Prereq junior standing. Waste treatment processes, management plan, regulations and permits.

481 Advanced Topics V 1-4 May be repeated for credit; cumulative maximum 8 hours. By interview only.

495 Internship in Agricultural Technology and Management V 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Prereq sophomore standing. Prior approval of supervisor and advisor required. Work experience related to academic learning. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

526 Energy Concepts in Agricultural Structures 3 (2-3) Graduate-level counterpart of AgTM 426; additional requirements. Credit not granted for both AgTM 426 and 526.

535 Instrumentation for Data Acquisition in Agriculture 3 (2-3) Prereq AgTM 331 or c/l. Graduate-level counterpart of AgTM 435; additional requirements. Credit not granted for both AgTM 426 and 526.

539 Principles of Vocational Education 2 or 3 Prereq 9 hours in Educ. Local, state, and national vocational technical educational legislation, policies, programs, and organizations.

542 Program Planning in Agricultural Education 2 Prereq Ag Ed 342. Organization and management of a total vocational agricultural program.

547 Directed Work Experience V 1-3 May be repeated for credit; cumulative maximum 6 hours. Job analysis and description; weekly work experience reports and analysis coordinated with problems related to the student’s employment in an approved occupation.

548 Student Organizations in Agricultural Education 2 Prereq certified College of Education major. Role of FFA in student organizations; role of FFA advisor; principles of leadership; characteristics of successful FFA chapters.

549 Agricultural Science in K-12 Classrooms 1 Developing selected agricultural and science curricula for K-12; special methods, materials and exercises.

550 Internship in Agricultural Education V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Off-campus professional experience. S, F grading.

561 Cooperative Education Internship V 2-12 Prereq undergraduate student. Off-campus cooperative education internship with business, industry, or government unit. S, F grading.

563 Microcomputers in the Vocational Classroom 3 (2-3) Implications and applications of microcomputers for experienced classroom teachers.

571 Seminar in Vocational Education 1 or 2 Prereq graduate standing. Seminar addressing new and emerging legislation and educational programs in vocational education.

573 Microcomputers in the Vocational Classroom 3 (2-3) Implications and applications of microcomputers for experienced classroom teachers.

573 Cooperative Education Programs 3 Program principles and design; teacher coordination procedures and responsibilities; classroom and on-the-job instruction; public relations; teacher administrative responsibilities.

578 Internship I (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 12 hours. Supervised experience in continuing, extension, and/or vocational educational environments.

600 Special Projects or Independent Study Variable credit. S, F grading.

Program in Biology

Associate Professor and Program Chair, J. L. Paznokas; Professors, R.N. Mack, L. P. Mallavia, W. R. Rayburn, K. D. Spence, G. L. Young; Associate Professors, R. A. Black, J. W. Crane, K. V. Kardong, S. B. Moffett, M. E. Murphy, P. S. Soltis; Assistant Professors, P. Carter, L. D. Hafford; Instructor, J. C. Horne; Adjunct Faculty, L. E. Rogers.

The introductory biological science courses provide background in the concepts common to life sciences and an overview of the diversity of animals, plants, and microorganisms. They meet General Education Requirements and may be prerequisite for courses in botany, microbiology, and zoology. Advanced biological science courses probe specific areas in depth.

This program leads to the degrees of Bachelor of Science in Biology and Master of Science in Biology.

Four options are available for the Bachelor of Science degree: biology education, botany, general biology, and prephysical therapy (prehealth). A minor in biology is offered.

Degree Program Requirements

At least 40 of the total hours required for the bachelor’s degree must be in 300-400-level courses. Two 300-400-level courses in the biological sciences with [M] designation are needed to satisfy the writing in the major university graduation requirement. Additionally, students must have two years of one foreign language in high school or take one year in college of a modern foreign language before graduation.

In addition to the above requirements, students select one of the following degree programs: Biology Education; Botany; General Biology; and Prephysical Therapy (Prehealth).

FIRST YEAR REQUIREMENTS

The first year requirements are common to all biology degree programs:

Freshman Year

First Semester

Bio 103 [B] (GER) 4
Chem 105 [P] (GER) 4
Eng 101 [W] (GER) 3
GenEd 110 [A] (GER) 3

Second Semester

Bio 104 [B] (GER) 4
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 140 [N] or 171 [N] (GER) 4

BIOLoGY EDuCAtIoN DEGREE PROGRAM (137 HOURS) 

Sophomore Year

First Semester

Chem 240 4
Phys 101 [P] (GER) 4
Psyc 105 [S] (GER) 3
SpCom 102 [C] (GER) 3

Second Semester

Chem 240 [B] (GER) 3
Eng 201 [W], 301 [W], or 302 [W] (GER) 4
GenEd 301 4
Phys 102 [P] (GER) 4

Junior Year

First Semester

Arts & Humanities [H,G] (GER) 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Chem 220 2
Chem 222 2
T & L 300 1
## Program in Biology

### Botany Degree Program (120 Hours)

#### FYDA

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester</th>
<th>Hours</th>
<th>Courses</th>
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<tbody>
<tr>
<td><strong>Sophomore</strong></td>
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<tr>
<td></td>
<td>First Semester</td>
<td>3</td>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td></td>
<td>Second Semester</td>
<td>3</td>
<td>Bio S 372 [M]</td>
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<tr>
<td></td>
<td>Complete Writing Portfolio</td>
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<tr>
<td><strong>Junior</strong></td>
<td>First Semester</td>
<td>6</td>
<td>Biology Electives</td>
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<td></td>
<td>Second Semester</td>
<td>3</td>
<td>Bot 448, 460, or 462</td>
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<tr>
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<td>Complete Writing Portfolio</td>
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</tr>
<tr>
<td><strong>Senior</strong></td>
<td>First Semester</td>
<td>6</td>
<td>Electives</td>
</tr>
<tr>
<td></td>
<td>Second Semester</td>
<td>3</td>
<td>Bot 450</td>
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<tr>
<td></td>
<td>Complete Writing Portfolio</td>
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### General Botany Degree Program (120 Hours)

#### FYDA

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<th>Hours</th>
<th>Courses</th>
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<td><strong>Sophomore</strong></td>
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<tr>
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<td>3</td>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td></td>
<td>Second Semester</td>
<td>3</td>
<td>Bio S 372 [M]</td>
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<td></td>
<td>Complete Writing Portfolio</td>
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<td><strong>Junior</strong></td>
<td>First Semester</td>
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<td>Biology Electives</td>
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<td>Second Semester</td>
<td>3</td>
<td>Bot 448, 460, or 462</td>
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<td>Second Semester</td>
<td>3</td>
<td>Bot 450</td>
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<tr>
<td></td>
<td>Complete Writing Portfolio</td>
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1. Pre-med students and those interested in advanced degrees should take Chem 340, 341, 342, 343 (a one-year course in organic chemistry).  
2. Bot 410 is strongly recommended.

### Prephysical Therapy (Prehealth) Degree Program (120 Hours) **FYDA**

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester</th>
<th>Hours</th>
<th>Courses</th>
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</thead>
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<td><strong>Sophomore</strong></td>
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<tr>
<td></td>
<td>First Semester</td>
<td>3</td>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td></td>
<td>Second Semester</td>
<td>3</td>
<td>Bio S 372 [M]</td>
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<tr>
<td></td>
<td>Complete Writing Portfolio</td>
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<tr>
<td><strong>Junior</strong></td>
<td>First Semester</td>
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<td>Biology Electives</td>
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<td>Second Semester</td>
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<td>Bot 448, 460, or 462</td>
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<td></td>
<td>Complete Writing Portfolio</td>
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<tr>
<td><strong>Senior</strong></td>
<td>First Semester</td>
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<td>Electives</td>
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<td>Second Semester</td>
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<td>Bot 450</td>
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<tr>
<td></td>
<td>Complete Writing Portfolio</td>
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</tbody>
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1. Pre-med students and those interested in advanced degrees should take Chem 340, 341, 342, 343 (a one-year course in organic chemistry).  
2. Micro 301 is preferred.

### Transfer Students

Transfer students must satisfy the program requirements for graduation. Science courses taken at other institutions will be evaluated and credits accepted where possible. Inquiries should be directed to the program chair.

### Preparation for Graduate Study

Students with undergraduate majors in such fields as microbiology, biology, botany, zoology, and plant or animal sciences in the College of Agriculture and Home Economics may be prepared for graduate study in biology. Graduate Record Examination scores from the general aptitude and advanced biology sections are required.

### Description of Courses

#### Biological Science

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<tr>
<th>Course Code</th>
<th>Description</th>
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<tr>
<td>101 [B]</td>
<td>Direction in Biological Sciences</td>
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81
102 [B] General Biology 4 (3-3) Not open to students who have taken a college-level course in general biology or botany. Nature of living things, methods, and function of diverse organisms. Credit not granted for Bio S 102 and 101, 103 or 105.

103 [B] Introductory Biology 4 (3-3) Prereq one semester Chem or c//. First semester of a one-year sequence. Recommended for pre-professional students. The nature of life, structure, function, genetics, growth, and development. Credit not granted for Bio S 103 and 101, 102, or 105.

104 [B] Introductory Biology 4 (3-3) Prereq Bio S 103 (Bio S 101 or 102 with a grade of A or B may be substituted); two semesters Chem or c//. Continuation of Bio S 103. Biology of organisms; plants, animals, bacteria, ecology, and evolution.

105 [B] Biological Science Laboratory 1 (0-3) Prereq college-level nonlaboratory general biology course. Elements of structure and function of organisms. For non-majors in the biological sciences. Credit not granted for more than one of Bio S 102, 103, 105.

201 [B] Contemporary Biology 1 Prereq Bio S 101, 102, 103, Bot 120, or Micro 101. Biological information that provides a framework for understanding life processes; impact of biological information on human affairs.


298 [B] Biological Science Honors 4 (3-3)

372 [M] General Ecology 4 (3-3) Prereq Bio S 104, one semester Chem. Relationship of organisms with physical and biotic components of their environment; at the population, community, and ecosystem level.

430 Methods of Teaching Science 3 (2-3) Prereq T & L 303; 12 hours science. Methods, philosophy, and structure of science; application in teaching middle and secondary school science courses.


465 Field Stream Ecology 2 Prereq general ecology. Ecological roles of immature insects in different size streams; pattern changes along the stream continuum; other ecological characteristics.


490 [M] Professional Seminar in Physical Therapy 2 (1-3) Prereq by interview only. Consideration of treatment modalities and health issues in physical therapy and related disciplines.

491 Physical Therapy Clinical Experience V 1-4 May be repeated for credit; cumulative maximum 20 hours. Prereq Psych 105; Zool 315; major in biology. Junior standing. By interview only. Work experience under supervision of a qualified professional in treatment of human physical disabilities. S, F grading.

495 Internship in Biology V 2-4 May be repeated for credit; cumulative maximum 8 hours. Prereq major in Bio S. By interview only. Experience in work related to specific career interests. S, F grading.

498 [M] Senior Thesis 3 Prereq senior standing, 4 research hours. Experimental/literature research leading to written thesis and oral examination.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

530 Statistical Ecology 4 (2-6) Prereq introductory statistics course. Collection and interpretation of ecological data according to biometrical procedures.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

Department of Botany


Botany is the basic plant science. The courses offered in the department are designed to meet the needs of three groups of students: (1) those planning to specialize in an applied science such as agronomy, microbiology, forestry, horticulture, pharmacy, plant pathology, range management, and wildlife management; (2) those wishing to study a biological science for its cultural or educational value; and (3) those who plan to specialize in botany. Those in the first group should desire to obtain as comprehensive a knowledge of the field as time will permit. The second group may find one year of introductory work sufficient. For the third group the department offers courses leading to advanced degrees in botany.

The department has laboratories and equipment suitable for graduate study in the major areas of botany and special facilities for work in the fields of biochemistry, biophysics, physiology, anatomy, developmental biology, ecology, molecular systems, population biology, and ultrastructure.

The department offers courses of study leading to the degrees of Master of Science and Doctor of Philosophy (Botany).

Preparation for Graduate Study

Before undertaking graduate study, a student should have completed substantially the equivalent of the schedule of studies shown under the biology program for the botany option. Undergraduate majors in such subjects as the applied plant sciences, the biological sciences, and the physical sciences may be well prepared for graduate study in this department. Students having deficiencies are given adequate opportunity to fulfill departmental requirements. Applicants should submit scores of the general aptitude and the advanced test in biology of the Graduate Record Examination.

Description of Courses

Botany

320 Introductory Plant Physiology 4 (3-3) Prereq Bio S 104 or Bot 120; org chem or c//. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants.

325 Plant Biotechnology 3 Prereq Bot 120, GenCB 301. Introduction to the genetic engineering of plants.

332 Systematic Botany 4 (2-6) Prereq Bio S 102, 104 or c//, or Bot 120. Identification and classification of vascular plants with emphasis on the local flora.

405 Principles of Organic Evolution 3 Same as Zool 405. Credit not granted for both Bot 405 and 505.

406 Microtechnique 4 (2-6) By interview only. Modern methods for preparation of biological specimens for microscopy; paraffin and resin embedding, microtomy, anatomical, cytological and histochemical techniques. Credit not granted for both Bot 406 and 506.

410 Plant Anatomy 4 (2-6) Prereq Bot 120. Developmental anatomy and morphology of vascular plants; economic forms. Credit not granted for both Bot 410 and 510.

417 Stress Physiology of Plants 3 Rec Bot 320. Temperature, light, salinity, water effects on physiological processes; mechanistic understanding of stress. Credit not granted for both Bot 417 and 517.

429 General Plant Pathology 3 Same as PI P 429.

430 Principles of Plant Systematics 3 Prereq Bot 332. Systematic theory: history and current views; approaches to phylogeny reconstruction and classification. Credit not granted for both Bot 430 and 530.

441 Agrostology 3 Prereq Bot 332. Classification, distribution, and structures of grasses with emphasis at the genetic level. Field trips required. Cooperative course taught by UI (Bot 441), open to WSU students.

448 Evolutionary Ecology of Populations 3 Same as Zool 448. Credit not granted for both Bot 448 and 548.

450 Introduction to Cell Biology 3 Same as GenCB 450.

460 Ecophysiology 3 Prereq Bio S 372; Bot 320. Relationships of biotic and abiotic environment to plant distribution and evolution through study of physiological processes. Credit not granted for both Bot 460 and 560.


499 Special Problems V 1-4 May be repeated for credit. S, F grading.
500 Seminar 1 May be repeated for credit. Prereq 20 hours Bot. S, F grading.
504 Experimental Methods in Plant Physiology 3 (2-3) Rec Bot 320. Advanced techniques and instrumental methods applicable to research in plant physiology.
505 Principles of Organic Evolution 3 Graduate-level counterpart of Bot 405; additional requirements. Credit not granted for both Bot 405 and 505.
506 Microtechnique 4 (2-6) Graduate-level counterpart of Bot 406; additional requirements. Credit not granted for both Bot 406 and 506.
510 Plant Anatomy 4 (2-6) Graduate-level counterpart of Bot 410; additional requirements. Credit not granted for both Bot 410 and 510.
511 Plant Cell Biology 3 Function of the plant cell with emphasis on current research; topics include membrane biology, protein targeting, and molecular signaling.
512 Molecular Mechanisms of Plant Development 3 Prereq Bot 320. Physiology of growth; metabolism during development and reproduction.
513 Plant Metabolism 3 Prereq BC/BP 364, Bot 320. Metabolic processes unique to plants, including the primary incorporation of nitrogen, sulfur, carbon dioxide and phosphate into biomolecules.
515 Seminar in Plant Physiology 1 May be repeated for credit. Same as CropS 515.
516 Water Relations and Intercellular Transport 3 Prereq Bot 320. Movement of water and solutes in plants, from the cellular level to the whole-plant level.
517 Stress Physiology of Plants 3 Graduate-level counterpart of Bot 417; additional requirements. Credit not granted for both Bot 417 and 517.
518 Photosynthesis, Photorespiration, and Plant Productivity 3 Rec BC/BP 364 or Bot 320. Photosynthesis, photorespiration and the interrelationship of those biochemical, physiological, and environmental factors which determine plant productivity.
520 Conservation Genetics 2 Same as GenCB 520.
525 Experimental Plant Ecology 3 (1-6) Same as NATRS 525.
530 Principles of Plant Systematics 3 Graduate-level counterpart of Bot 430; additional requirements. Credit not granted for both Bot 430 and 530.
533 Modern Methods in Systematics 4 (2-6) Rec Bot 430 or Zool 511. Selecting, gathering, and analyzing morphological, cytological, molecular data for phylogenetic and evolutionary studies.
535 Angiosperm Families of the World 3 (2-3) Prereq Bot 532 or 430. Description, classification, and geographic distribution of families of flowering plants of the world.
548 Evolutionary Ecology 3 Same as Zool 548. Credit not granted for both Bot 448 and 548.
560 Ecophysiology 3 Graduate-level counterpart of Bot 460; additional requirements. Credit not granted for both 460 and 560.
562 Community Ecology 3 Graduate-level counterpart of Bot 462; additional requirements. Credit not granted for both Bot 462 and 562.
563 Field Ecology 2 (0-6) Graduate-level counterpart of Bot 463; additional requirements. Credit not granted for both Bot 463 and 563. Cooperative course taught by WSU, open to UI students (Bot 537).
565 Field Methods in Plant Ecology 3 Graduate-level counterpart of Bot 465; additional requirements. Credit not granted for both Bot 465 and 565.
567 Field Methods in Plant Ecology 3 Graduate-level counterpart of Bot 467; additional requirements. Credit not granted for both Bot 467 and 567.
570 Advanced Topics in Botany V 1-4 May be repeated for credit. Recent research in plant science.
580 Special Projects or Independent Study 3 Variable credit. S, F grading.
581 Master’s Research, Thesis, and/or Examination 3 Variable credit. S, F grading.
582 Master’s Special Problems, Directed Study, and/or Examination 3 Variable credit. S, F grading.
583 Doctoral Research, Dissertation, and/or Examination 3 Variable credit. S, F grading.

Electron Microscopy

E Mic 406 Microtechnique 4 (2-6) Same as Bot 406. Credit not granted for both E Mic 406 and 506.
506 Microtechnique 4 (2-6) Same as Bot 506. Credit not granted for both E Mic 406 and 506.
507 Electron Microscopy Laboratory 4 (2-6) Prereq one year biology; one year org chem; one year phys; by interview only. Techniques of transmission electron microscopy, especially those applicable to biological materials; theory and practice for electron optics and specimen preparation.
586 Special Projects in Electron Microscopy 2 (0-6) or 3 (0-9) May be repeated for credit. By interview only. Practical training in one or more areas of electron microscopy; TEM, SEM, ultramicrotomy, specimen processing, darkroom procedures and light microscopy.
587 Special Topics in Electron Microscopy 1 May be repeated for credit; cumulative maximum 4 hours. S, F grading.

Departments of Business

DEPARTMENT OF ACCOUNTING AND BUSINESS LAW

Professor and Department Chair, G. Johnson; Professors, R. August, A. Frael; Associate Professors, R. Greenburg, T. Namunaker, D. Sanders, R. Toolson, B. Wong-on-Wing; Assistant Professors, D. Bullit, J. Cote, S. Gill, K. Krumwiede, C. Latham, M. Linville.

DEPARTMENT OF FINANCE, INSURANCE, AND REAL ESTATE

Distinguished Professor of Risk Management and Insurance and Department Chair, N. Bell; Professors, I. Field, H. Kerr, G. Petry; Associate Professors, B. Ahn, B. Chen, S. Fotopoulos, I. Goodstein, B. Han, Y. Huo, R. Reed; George and Carolyn Hubman Distinguished Professor, J. Valucich; Assistant Professors, F. Carunicas, R. Gilson, D. Lemak, N. Mero, V. Miskin, M. Pendergrast, T. Tripp, A. Vasudevan, K. Wade.

DEPARTMENT OF MANAGEMENT AND SYSTEMS

Professor and Department Chair, M. C. Wang; Professors, D. Baker, J. Cullen, C. Morgan; Associate Professors, S. Ahn, B. Chen, S. Fotopoulos, I. Goodstein, B. Han, Y. Huo, R. Reed; George and Carolyn Hubman Distinguished Professor, J. Valucich; Assistant Professors, F. Carunicas, R. Gilson, D. Lemak, N. Mero, V. Miskin, M. Pendergrast, T. Tripp, A. Vasudevan, K. Wade.

DEPARTMENT OF MARKETING

Professor and Department Chair, J. McCullough; Professors, J. Cote, R. Markin, D. Stem; Associate Professors, J. Johnson, D. Muehling, P. Tansuhaj, U. Umesh; Assistant Professors, J. Gregan-Paxton, J. Giese, P. Henderson, N. Medina, J. Rose, S. Silverman, E. Spanenberg, D. Spratt.

The study of business administration involves the understanding and application of knowledge developed in a wide range of interrelated disciplines, such as accounting, finance and banking, human resources/personnel, management information systems, management, marketing, decision sciences, and real estate. Concepts from mathematics, sociology, psychology, anthropology, economics, and other disciplines are integrated in order to provide the individual with both a practical and theoretical understanding of business organization and its functions in our society. The breadth education offered by this curriculum permits the student an almost unlimited range of employment opportunities in business, industry, and government.

The curricula leading to degrees in business administration at both the undergraduate and graduate levels are accredited by the American Assembly of Collegiate Schools of Business (AACSB). The accounting programs are also separately accredited by the AACSB.

The business departments at the Pullman campus offer courses of study leading to the degrees of Bachelor of Arts in Business Administration, Master of Accounting, Master of Business Administration, and Doctor of Philosophy. The Bachelor of Arts in Business Administration and Master of Business Administration degrees are also offered through the branch campuses at Tri-Cities and Vancouver.

The College of Business and Economics, in cooperation with the Division of Humanities and Social Sciences, offers a joint Bachelor of Liberal Arts and a Master of Business Administration (4 & 1) Program. Students selected for this program complete a BA in liberal arts with a business core and receive guaranteed admission into the MBA Program in Business Administration, allowing them to finish the MBA in one year. Admission to the program is highly selective. For further information, students should contact the Associate Dean of Business and Economics.

Certification Requirements

Certification application guidelines are campus specific, and students must meet the requirements of the campus they plan to attend. As a minimum, a student must have earned at least 30 semester hours of credit on graded course work, including 6 hours of business core courses, and meet current standards of (1) 2.5 cumulative g.p.a. and (2) 2.0 business g.p.a. or vice versa based on at least 6 hours of business core courses.

General Program Requirements

General course requirements, core courses, and fields of specialization are presented below. Requirements vary depending upon the field of specialization selected. For a detailed description of degree requirements (with changes approved since publication of the latest catalog), see the degree requirements for BA majors, available in the College of Business and Economics.

All students majoring in business administration
must see their advisors and have a degree audit upon completion of 45 hours of credit. By the completion of 60 hours of credit, all students must have completed English, Math and 100-200-level CBE core courses. These required courses are: Acctg 230, 231; B Law 210; Dec S 215; Econ 101, 102; Engl 101, Math 172 or 201 (Math 201 recommended); Math 171 or 202 (Math 202 recommended); and MIS 150. Enrollment in 300-level CBE business courses is restricted to those students who have met these requirements.

All students majoring in business administration must complete 50% of their course work outside of the College of Business and Economics. Nine hours of economics and 4 hours of Dec S 215 are counted as outside of the CBE to meet this 50% rule.

Residence Requirements: 1) At least 50% of business core and major specialization course requirements must be taken at WSU; 2) At least 9 300-400-level business/economics courses must be taken in residence (classroom setting) at WSU; 3) The last 30 hours of course work must be taken at WSU; and 4) A maximum of 9 hours of correspondence courses may be used to satisfy business course requirements.

The chair of the department and/or the dean of the college must approve in writing any portion of the 300-400-level credit which is to be satisfied by transfer, correspondence, independent study, or other credit which does not carry WSU grade points. Additional transfer, correspondence, and independent study credit (within university limits on these credits) may count toward the 120 hours required for the degree and/or satisfy requirements other than major courses.

Only general elective courses that are not GERs or core/major requirements may be taken pass/fail.

An honors thesis is required for Honors students.

**Degree Program Requirements**

For all degree programs, students must complete 53 hours outside of the college of business and economics. Enrollment in 300-level business courses is restricted to those students who have completed Acctg 230, 231; B Law 210; Dec S 215; Econ 101, 102; Engl 101; Math 172 or 201; Math 171 or 202; MIS 150.

**ACCOUNTING DEGREE PROGRAM (120 HOURS)**

The objective of the baccalaureate program with a concentration in accounting is to provide basic conceptual accounting and business knowledge as a foundation for accounting career development. This would provide preparation for careers in public accounting, corporation accounting, and for accounting positions in government service.

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities</td>
<td>3</td>
</tr>
<tr>
<td>Econ 101 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Tier I Science [Q] (GER)</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
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**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 230</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] or 202 [N] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 231</td>
<td>3</td>
</tr>
<tr>
<td>B Law 210</td>
<td>3</td>
</tr>
<tr>
<td>Phil 360 or Pol S Elective</td>
<td>3</td>
</tr>
<tr>
<td>SpCom 102 [C] (GER)</td>
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**Junior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Acctg 331</td>
<td>3</td>
</tr>
<tr>
<td>Acctg 335 or 338</td>
<td>3</td>
</tr>
<tr>
<td>Fin 325</td>
<td>3</td>
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<tr>
<td>Mktg 360</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<tbody>
<tr>
<td>Acctg 333</td>
<td>3</td>
</tr>
<tr>
<td>Acctg 335 or 338</td>
<td>3</td>
</tr>
<tr>
<td>Dec S 340</td>
<td>3</td>
</tr>
<tr>
<td>Econ 301</td>
<td>3</td>
</tr>
<tr>
<td>Mktg 301</td>
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**Senior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 430, 431, 435, Econ 320, 340, Fin 425, or 427</td>
<td>3</td>
</tr>
<tr>
<td>Acctg 433 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Acctg 434</td>
<td>3</td>
</tr>
<tr>
<td>Soc or Psych [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 439 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Acctg or General Elective</td>
<td>3</td>
</tr>
<tr>
<td>B Law 410 or 411</td>
<td>3</td>
</tr>
<tr>
<td>Mktg 491 or 492</td>
<td>3</td>
</tr>
<tr>
<td>Pol S Elective</td>
<td>3</td>
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</tbody>
</table>

1 For a total of 7 hours of Biological and Physical Sciences.
2 Math 201 and 202 are strongly recommended.

**BUSINESS ECONOMICS DEGREE PROGRAM (120 HOURS)**

Preparation for executive careers in large corporations where a broad understanding of the economy is crucial in decision making; in financial institutions, government agencies, public utilities and transportation companies, with labor unions and law firms; for careers in economic or market research and analysis. The economics field of specialization is also excellent preparation for graduate training in business, economics or law.

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Econ 101 [S] (GER)</td>
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**Second Semester**

<table>
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<tr>
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<th>Hours</th>
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<tr>
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<tr>
<td>Econ 102 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [L,G,K] (GER)</td>
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<tr>
<td>Math 172 or 201</td>
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**Second Semester**

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<tbody>
<tr>
<td>First Semester</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
</tr>
<tr>
<td>Econ 102 [S] (GER)</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<td>Math 172 or 201</td>
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**Sophomore Year**

<table>
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<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] or 202 [N] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<tbody>
<tr>
<td>Acctg 231</td>
<td>3</td>
</tr>
<tr>
<td>B Law 210</td>
<td>3</td>
</tr>
<tr>
<td>Dec S 215</td>
<td>4</td>
</tr>
<tr>
<td>Phil 360 or Pol S Elective</td>
<td>3</td>
</tr>
<tr>
<td>SpCom 102 [C] (GER)</td>
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<table>
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<tr>
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<tbody>
<tr>
<td>Acctg 331</td>
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<tr>
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<td>3</td>
</tr>
<tr>
<td>Dec S 340</td>
<td>3</td>
</tr>
<tr>
<td>Econ 301</td>
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<td>Mktg 301</td>
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<td>Econ 301</td>
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<td>Mktg 301</td>
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**Senior Year**

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<td>Soc or Psych [S,K] (GER)</td>
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<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
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<table>
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<td>3</td>
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<tr>
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<td>3</td>
</tr>
</tbody>
</table>

1 For a total of 7 hours of Biological and Physical Sciences.
2 Math 201 and 202 are strongly recommended.

**DECISION SCIENCE DEGREE PROGRAM (120 HOURS)**

Preparation for careers in business or government in the following areas: total quality management, statistical consulting and data analysis, operations planning and management.
### Entrepreneurship Option

The Entrepreneurship Option has been developed for students interested in venture management, new venture startups, and small business and the management of family firms.

#### First Semester
- Arts & Humanities [H, G] (GER) 3
- Econ 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Tier I Science [Q] (GER) 3

#### Second Semester
- Biological Sciences [B] (GER) 3 or 4
- MIS 150 2
- Econ 102 [S] (GER) 3
- Intercultural [I, G, K] (GER) 3
- Math 172 or 201 3

#### Sophomore Year
- First Semester
  - 300-400-level Econ Elective 3
  - Acctg 230 3
  - Dec S 215 4
  - Oral Com [C] (GER) 3
  - Soc or Psych [S,K] (GER) 3
- Second Semester
  - Elective 3
  - Tier III Capstone (GER) 3
- Senior Year
  - First Semester
    - Elective 3
  - Complete Writing Portfolio
  - Second Semester
    - Elective 3

#### Junior Year
- First Semester
  - Dec S 344 3
  - Fin 325 3
  - Mgt 301 3
  - MIS 350 3
  - Mkgt 360 3
  - Complete Writing Portfolio
- Second Semester
  - Elective 3
- Senior Year
  - First Semester
    - 300-400-level Elective 3
    - Mgt 492 3
    - Tier III Capstone (GER) 3
    - Two from: Acctg 338, B Law 410, Ins 420 [M], MIS 372 [M], Mgt 450, 455, Mkgt 478 [M] 6
- Second Semester
  - Mgt 429 3
  - Mkgt 490 3
  - One from: Acctg 338, B Law 410, Ins 420 [M], MIS 372 [M], Mgt 450, 455, Mkgt 478 [M] 3

#### Finance Degree Program

#### Freshman Year
- First Semester
  - Arts & Humanities [H,G] (GER) 3
  - Econ 101 [S] (GER) 3
  - Engl 101 [W] (GER) 3
  - GenEd 110 [A] (GER) 3
  - Tier I Science [Q] (GER) 3
- Second Semester
  - Biological Sciences [B] (GER) 3 or 4
  - MIS 150 2
  - Econ 102 [S] (GER) 3
  - Intercultural [I, G, K] (GER) 3
  - Math 172 or 201 3

#### Sophomore Year
- First Semester
  - 300-400-level Econ Elective 3
  - Acctg 230 3
  - Dec S 215 4
  - Oral Com [C] (GER) 3
  - Soc or Psych [S,K] (GER) 3
- Second Semester
  - Elective 3
  - Tier III Capstone (GER) 3
- Junior Year
  - First Semester
    - Elective 3
    - Complete Writing Portfolio
  - Second Semester
    - Elective 3
- Senior Year
  - First Semester
    - 300-400-level Elective 3
    - Mgt 492 3
    - Tier III Capstone (GER) 3
    - Two from: Acctg 338, B Law 410, Ins 420 [M], MIS 372 [M], Mgt 450, 455, Mkgt 478 [M] 6
- Second Semester
  - Mgt 429 3
  - Mkgt 490 3
  - One from: Acctg 338, B Law 410, Ins 420 [M], MIS 372 [M], Mgt 450, 455, Mkgt 478 [M] 3

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1. For a total of 7 hours of Biological and Physical Sciences.
2. Math 201 and 202 are strongly recommended.

### Entrepreneurship Degree Program (120 Hours)

#### Freshman Year
- First Semester
  - Arts & Humanities [H,G] (GER) 3
  - Econ 101 [S] (GER) 3
  - Engl 101 [W] (GER) 3
  - GenEd 110 [A] (GER) 3
  - Tier I Science [Q] (GER) 3
- Second Semester
  - Biological Sciences [B] (GER) 3 or 4
  - MIS 150 2
  - Econ 102 [S] (GER) 3
  - Intercultural [I, G, K] (GER) 3
  - Math 172 or 201 3

#### Sophomore Year
- First Semester
  - 300-400-level Econ Elective 3
  - Acctg 230 3
  - Dec S 215 4
  - Oral Com [C] (GER) 3
  - Soc or Psych [S,K] (GER) 3
- Second Semester
  - Elective 3
  - Tier III Capstone (GER) 3
- Junior Year
  - First Semester
    - Elective 3
    - Complete Writing Portfolio
  - Second Semester
    - Elective 3
- Senior Year
  - First Semester
    - 300-400-level Elective 3
    - Mgt 492 3
    - Tier III Capstone (GER) 3
    - Two from: Acctg 338, B Law 410, Ins 420 [M], MIS 372 [M], Mgt 450, 455, Mkgt 478 [M] 6
- Second Semester
  - Mgt 429 3
  - Mkgt 490 3
  - One from: Acctg 338, B Law 410, Ins 420 [M], MIS 372 [M], Mgt 450, 455, Mkgt 478 [M] 3

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1. For a total of 7 hours of Biological and Physical Sciences.
2. Math 201 and 202 are strongly recommended.
3. Acctg 331 or 338.

### Finance Degree Program (120 Hours)

#### Freshman Year
- First Semester
  - Arts & Humanities [H,G] (GER) 3
  - Econ 101 [S] (GER) 3
  - Engl 101 [W] (GER) 3
  - GenEd 110 [A] (GER) 3
  - Tier I Science [Q] (GER) 3
- Second Semester
  - Economic Sciences [E] (GER) 3
  - Intercultural [I, G, K] (GER) 3
  - Math 172 or 201 3

#### Sophomore Year
- First Semester
  - 300-400-level Econ Elective 3
  - Acctg 230 3
  - Dec S 215 4
  - Oral Com [C] (GER) 3
  - Soc or Psych [S,K] (GER) 3
- Second Semester
  - Elective 3
  - Tier III Capstone (GER) 3
- Junior Year
  - First Semester
    - Elective 3
    - Complete Writing Portfolio
  - Second Semester
    - Elective 3
- Senior Year
  - First Semester
    - 300-400-level Elective 3
    - Mgt 492 3
    - Tier III Capstone (GER) 3
    - Two from: Acctg 338, B Law 410, Ins 420 [M], MIS 372 [M], Mgt 450, 455, Mkgt 478 [M] 6
- Second Semester
  - Mgt 429 3
  - Mkgt 490 3
  - One from: Acctg 338, B Law 410, Ins 420 [M], MIS 372 [M], Mgt 450, 455, Mkgt 478 [M] 3

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1. For a total of 7 hours of Biological and Physical Sciences.
2. Math 201 and 202 are strongly recommended.
3. Acctg 331 or 338.
4. Any approved 300-400-level courses in accounting, decision science, economics, finance, international business, real estate, or risk management and insurance.

### FYDA

The Entrepreneurship Option has been developed for students interested in venture management, new venture startups, and small business and the management of family firms.

The Finance Option has been developed for students interested in finance, commercial and investment banks, government financial agencies, and other financial institutions.

The Finance Option has been developed for students interested in finance, commercial and investment banks, governmental financial agencies, and other financial institutions.
GENERAL BUSINESS DEGREE PROGRAM (120 HOURS) ✔FYDA
Preparation for careers in business for the student who does not wish to specialize in any of the other options. Students looking forward to being proprietors of their own business frequently desire a general business course of study.

Freshman Year

**First Semester**
- Arts & Humanities [H.G] (GER) 3
- Econ 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Tier I Science [Q] (GER) 3

**Second Semester**
- Biological Sciences [B] (GER) 3 or 4
- Econ 102 [S] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Math 172 or 201 3
- MIS 150 2

Sophomore Year

**First Semester**
- 300-400-level Engl [W] (GER) 3
- Acctg 230 3
- Physical Sciences [P] (GER) 3 or 4
- GenEd 111 [A] (GER) 3
- Math 171 [N] or 202 [N] (GER) 3 or 4

**Second Semester**
- Acctg 231 3
- B Law 210 3
- Dec S 215 4
- Oral Com [C] (GER) 3
- Soc or Psych [S,K] (GER) 3

Junior Year

**First Semester**
- Fin 325 3
- Mgt 301 3
- MIS 350 3
- Mktg 360 3
- Elective 3

**Second Semester**
- 300-400-level Business Elective [M] 3
- 300-400-level Ecn Elective 3
- 400-level Business Elective 3
- Dec S 340 3
- Elective 3

Senior Year

**First Semester**
- 300-400-level Business Elective [M] 3
- 400-level Business Elective 6
- Elective 6

**Second Semester**
- 300-400-level Elective 3
- Mgt 491 or 492 3
- Pol S Elective 3
- Tier III Capstone (GER) 3
- Elective 3

**Second Semester**
- Mgt 455 [M] 3
- Mgt 491 or 492 3
- Pol S Elective 3
- Tier III Capstone (GER) 3
- Elective 3

HUMAN RESOURCES/PERSONNEL DEGREE PROGRAM (120 HOURS) ✔FYDA
Preparation for careers in personnel and industrial relations and the personnel aspects of government service and business including: employee recruitment and selection, financial compensation systems, training and development.

Freshman Year

**First Semester**
- Arts and Humanities [H.G] (GER) 3
- Econ 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Tier I Science [Q] (GER) 3

**Second Semester**
- Biological Sciences [B] (GER) 3 or 4
- Econ 102 [S] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Math 172 or 201 3
- MIS 150 2

Sophomore Year

**First Semester**
- 300-400 Level-Engl [W] (GER) 3
- Acctg 230 3
- Physical Sciences [P] (GER) 3 or 4
- GenEd 111 [A] (GER) 3
- Math 171 [N] or 202 [N] (GER) 3 or 4

**Second Semester**
- Acctg 231 3
- B Law 210 3
- Dec S 215 4
- Oral Com [C] (GER) 3
- Soc or Psych [S,K] (GER) 3

Junior Year

**First Semester**
- Fin 325 3
- Mgt 301 3
- MIS 350 3
- Mktg 360 3
- Elective 3

**Second Semester**
- Dec S 340 3
- Econ 350 3
- Mgt 401 [M] 3
- Mgt 450 3
- Elective 3

Senior Year

**First Semester**
- Mgt 455 3
- Three of: 400-level business elective; Dec S 412 [M]; Econ 450, 451; MIS 448; Psych 412 9
- Elective 3

**Second Semester**
- Mgt 456 [M] 3
- Mgt 491 or 492 3
- Pol S Elective 3
- Tier III Capstone (GER) 3
- Elective 3

INTERNATIONAL BUSINESS DEGREE PROGRAM (122 HOURS) ✔FYDA
Preparation for careers with multinational corporations, governmental and intergovernmental agencies both domestic and international.

Students must complete either an In Residence or a Foreign Study curriculum. This schedule is for the In Residence curriculum only. See the department chair for specific information on the Foreign Study curriculum.

Freshman Year

**First Semester**
- Arts & Humanities [H.G] (GER) 3
- Econ 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Tier I Science [Q] (GER) 3

**Second Semester**
- Biological Sciences [B] (GER) 3 or 4
- Econ 102 [S] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Math 172 or 201 3
- MIS 150 2

Sophomore Year

**First Semester**
- 300-400-level Engl [W] (GER) 3
- Acctg 230 3
- Physical Sciences [P] (GER) 3 or 4
- GenEd 111 [A] (GER) 3
- Math 171 [N] or 202 [N] (GER) 3 or 4

**Second Semester**
- Acctg 231 3
- B Law 210 3
- Dec S 215 4
- Oral Com [C] (GER) 3
- Soc or Psych [S,K] (GER) 3

Junior Year

**First Semester**
- Fin 325 3
- I Bus 380 [M] 3
- Mgt 301 3
- MIS 350 3
- Mktg 360 3

**Second Semester**
- 300-400-level Econ 3
- Dec S 340 3
- Foreign Language Elective 4
- Group B Elective 3
- Pol S Elective 3

Senior Year

**First Semester**
- Foreign Language Elective 4
- Group A Elective 9
- Elective 3

**Second Semester**
- Group A Elective 6
- Group B Elective 3
- Mgt 491 or 492 3
- Tier III Capstone (GER) 3

1 For a total of 7 hours of Biological and Physical Sciences.
2 Math 201 and 202 are strongly recommended.
LAW AND PUBLIC POLICY DEGREE PROGRAM (120 HOURS)  ✔FYDA
Preparation for careers in consulates, embassies and the State Department, in criminal justice administration, court administration, public utility administration, labor union administration, and government agency administration; also private business dealing with the foregoing.

Freshman Year
First Semester  Hours
Arts & Humanities [H, G] (GER)  3
Econ 101 [S] (GER)  3
Engl 101 [W] (GER)  3
GenEd 110 [A] (GER)  3
Tier I Science [Q] (GER)  3

Second Semester  Hours
Biological Sciences [B] (GER)  3 or 4
Ecol 102 [S] (GER)  3
Intercultural [I, G, K] (GER)  3
Math 172 or 201  3
MIS 150  2

Sophomore Year
First Semester  Hours
300-400-level Engl [W] (GER)  3
Acctg 230  3
Physical Sciences [P] (GER)  3 or 4
GenEd 111 [A] (GER)  3
Math 171 [N] or 202 [N] (GER)  3 or 4

Second Semester  Hours
Acctg 231  3
B Law 210  3
Dec S 215  4
Oral Com [C] (GER)  3
Soc or Psych [S,K] (GER)  3

Junior Year
First Semester  Hours
Fin 325  3
Mgt 301  3
MIS 350  3
Mktg 360  3
Elective  3
Complete Writing Portfolio

Second Semester  Hours
Dec S 340  3
Two of Group A Electives  6
Two 300-400-level Crm J, Econ, Engl, Pol S, or Soc  6

Senior Year
First Semester  Hours
B Law Group A Econ Elective  3
B Law Group A Elective  3
Engl 302 [W], 402 [W], or 451  3
Elective  3

Second Semester  Hours
Mgt 491 or 492  3
Pol S Elective  3
Tier III Capstone (GER)  3
Electives  6

MANAGEMENT DEGREE PROGRAM (120 HOURS)  ✔FYDA
Students may emphasize preparation for one of three careers in this option: (1) careers as production executives in manufacturing and enterprises and for other administrative positions in business and government for which production training is useful and desirable; (2) careers for which an understanding of international business is desirable; and (3) careers in management which require an understanding of people in organizations as well as the production function.

Freshman Year
First Semester  Hours
Arts & Humanities [H,G] (GER)  3
Econ 101 [S] (GER)  3
Engl 101 [W] (GER)  3
GenEd 110 [A] (GER)  3
Tier I Science [Q] (GER)  3

Second Semester  Hours
Biological Sciences [B] (GER)  3 or 4
Ecol 102 [S] (GER)  3
Intercultural [I,G,K] (GER)  3
Math 172 or 201  3
MIS 150  2

Sophomore Year
First Semester  Hours
300-400-level Engl [W] (GER)  3
Acctg 230  3
Physical Sciences [P] (GER)  3 or 4
GenEd 111 [A] (GER)  3
Math 171 [N] or 202 [N] (GER)  3 or 4

Second Semester  Hours
Acctg 231  3
B Law 210  3
Dec S 215  4
Oral Com [C] (GER)  3
Soc or Psych [S,K] (GER)  3

Junior Year
First Semester  Hours
Fin 325  3
Mgt 301  3
MIS 350  3
Mktg 360  3
Elective  3
Complete Writing Portfolio

Second Semester  Hours
Dec S 340  3
300-400-level Econ Elective  3
Dec S 340  3
Mgt 401 [M]  3
Soc or Psych [S,K] (GER)  3
Elective  3

Junior Year
First Semester  Hours
Fin 325  3
Mgt 301  3
MIS 350  3
Mktg 360  3
Complete Writing Portfolio

Second Semester  Hours
Dec S 340  3
MIS 372  3
MIS 375  3
MIS 448 [M]  3
Oral Com [C] (GER)  3

Senior Year
First Semester  Hours
Mgt 491 or 492  3
Three of: Dec S 412 [M], 440 [M], 344; MIS 448; Mgt 450, 453, 489  9
Elective  3

Second Semester  Hours
Mgt 483 [M]  3
Tier III Capstone (GER)  3
Two of: 400-level Mgt, 300-400-level Business, Econ, or 300-400-level Anth, Psych, Soc  6
Elective  3

MANAGEMENT INFORMATION SYSTEMS DEGREE PROGRAM (120 HOURS)  ✔FYDA
Preparation for careers in every field of business, using information systems technology to solve business problems. Provides excellent training in systems design, development, networking, and support to meet the demands of this fast-growing occupational area.

Freshman Year
First Semester  Hours
Arts & Humanities [H,G] (GER)  3
Econ 101 [S] (GER)  3
Engl 101 [W] (GER)  3
GenEd 110 [A] (GER)  3
Tier I Science [Q] (GER)  3

Second Semester  Hours
Biological Sciences [B] (GER)  3 or 4
Ecol 102 [S] (GER)  3
Intercultural [I,G,K] (GER)  3
Math 172 or 201  3
MIS 150  2

Sophomore Year
First Semester  Hours
300-400-level Engl [W] (GER)  3
Acctg 230  3
Physical Sciences [P] (GER)  3 or 4
GenEd 111 [A] (GER)  3
Math 171 [N] or 202 [N] (GER)  3 or 4

Second Semester  Hours
Acctg 231  3
B Law 210  3
Dec S 215  4
Oral Com [C] (GER)  3
Soc or Psych [S,K] (GER)  3

Junior Year
First Semester  Hours
Fin 325  3
Mgt 301  3
MIS 350  3
Mktg 360  3
Elective  3
Complete Writing Portfolio

Second Semester  Hours
Dec S 340  3
300-400-level Econ Elective  3
Dec S 340  3
Mgt 401 [M]  3
Soc or Psych [S,K] (GER)  3
Elective  3

Junior Year
First Semester  Hours
Fin 325  3
Mgt 301  3
MIS 350  3
Mktg 360  3
Complete Writing Portfolio

Second Semester  Hours
Dec S 340  3
MIS 372  3
MIS 375  3
MIS 448 [M]  3
Oral Com [C] (GER)  3
### MARKETING DEGREE PROGRAM (120 HOURS) ✔FYDA
Preparation for careers in marketing management, manufacturers' and wholesalers' sales, retailing, and marketing research.

#### Freshman Year
**First Semester**
- Arts & Humanities [H,G] (GER) 3
- Econ 101 [S] (GER) 3
- Eng 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Tier I Science [Q] (GER) 3

**Second Semester**
- Biological Sciences [B] (GER) 1
- Econ 102 [S] (GER) 3
- GenEd 111 [A] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Math 172 or 201 3

#### Sophomore Year
**First Semester**
- 300-400-level Engl [W] (GER) 3
- Acctg 230 3
- Physical Sciences [P] (GER) 3
- Math 171 [N] or 202 [N] (GER) 3
- MIS 150 3

**Second Semester**
- Acctg 231 3
- B Law 210 3
- Oral Com [C] (GER) 3
- Soc or Psych [S,K] (GER) 3

#### Junior Year
**First Semester**
- Dec S 340 3
- Fin 325 3
- Mgt 301 3
- Mktg 360 3
- Pol S Elective 3
- Complete Writing Portfolio

**Second Semester**
- Group A Elective [M] 3
- Group B Elective 3
- MIS 350 3

#### Senior Year
**First Semester**
- Econ 300-400-level Elective 3
- MIS 474 3
- Mktg 491 or 492 3
- Elective 3

**Second Semester**
- Group A Elective 3
- Mktg 491 or 492 3
- Mktg 460 [M] 3
- Tier III Capstone (GER) 3
- Elective 3

### REAL ESTATE DEGREE PROGRAM (120 HOURS) ✔FYDA
Preparation for careers in real estate administration, appraisal, brokerage, finance, management, marketing, production, selling, and title insurance.

#### Freshman Year
**First Semester**
- Arts & Humanities [H,G] (GER) 3
- Econ 101 [S] (GER) 3
- Eng 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Tier I Science [Q] (GER) 3

**Second Semester**
- Biological Sciences [B] (GER) 3
- Econ 102 [S] (GER) 3
- GenEd 111 [A] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Math 172 or 201 3

#### Sophomore Year
**First Semester**
- 300-400-level Engl [W] (GER) 3
- Acctg 230 3
- Physical Sciences [P] (GER) 3
- Math 171 [N] or 202 [N] (GER) 3
- Soc or Psych [S,K] (GER) 3

**Second Semester**
- Acctg 231 3
- B Law 210 3
- Oral Com [C] (GER) 3
- Complete Writing Portfolio

### RISK MANAGEMENT & INSURANCE DEGREE PROGRAM (120 HOURS) ✔FYDA
Preparation for careers in insurance agencies, actuarial administration, claims, business risk management, investment, and underwriting.

#### Freshman Year
**First Semester**
- Arts & Humanities [H,G] (GER) 3
- Econ 101 [S] (GER) 3
- Eng 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Tier I Science [Q] (GER) 3

**Second Semester**
- Biological Sciences [B] (GER) 3
- Econ 102 [S] (GER) 3
- GenEd 111 [A] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Math 172 or 201 3

**Sophomore Year**
**First Semester**
- 300-400-level Engl [W] (GER) 3
- Acctg 230 3
- B Law 210 3
- Math 171 [N] or 202 [N] (GER) 3
- Soc or Psych [S,K] (GER) 3

**Second Semester**
- Acctg 231 3
- Physical Sciences [P] (GER) 3
- Dec S 215 4
- MIS 150 3
- Oral Com [C] (GER) 3

**Junior Year**
**First Semester**
- Fin 325 3
- Mgt 301 3
- MIS 350 3
- R E 305 3

**Second Semester**
- Group A Elective [M] 3
- Group B Elective 3
- MIS 350 3

**Senior Year**
**First Semester**
- 300-400-level Econ Elective 3
- Dec S 340 3
- Mktg 360 3
- R E 405 [M] 3
- Pol S Elective 3

**Second Semester**
- Group A Elective 3
- Mktg 491 or 492 3
- Mktg 460 [M] 3
- Tier III Capstone (GER) 3
- Elective 3

1 For a total of 7 hours of Biological and Physical Sciences.
2 Math 201 and 202 are strongly recommended.
Mgt 301  3
Mktg 360  3
Complete Writing Portfolio  3

**Second Semester**  
**Hours**
300-400-level Business Elective\(^1\)  6
Dec S 340  3
Ins 321  3
MIS 350  3

**Senior Year**

**First Semester**  
**Hours**
300-400-level Business Elective\(^1\)  3
Ins 322  3
Ins 420 [M]  3
Pol S Elective  3
Elective  3

**Second Semester**  
**Hours**
Fin 425 [M]  3
Mgt 491 or 492  3
Tier III Capstone (GER)\(^4\)  3
Electives  6

\(^{1}\) For a total of 7 hours of Biological and Physical Sciences.
\(^{2}\) Math 201 and 202 are strongly recommended.
\(^{3}\) Three 300-400-level electives are required in
Acctg, B Law, Econ, Fin, Mktg, or R E (one of which must be in Econ).
\(^{4}\) The following are frequently recommended:
Acctg 335; B Law 411; Fin 422; I Bus 380; Mktg 467 or 468; R E 305. Ins 498, an Internship, is strongly recommended as an elective during the summer after the student’s junior year. This would allow a 12-hour senior year second semester.

**Minor in Business Administration**
The minor in business requires at least 16 hours, 8 of which must be 300-400-level, with an average business g.p.a. of at least 2.0 and a distribution as indicated below:


Courses for the minor may **not** be taken pass, fail. A total of 6 hours transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work must be taken in residence at WSU. Deviations from the stated requirements must be approved by the associate dean of the College of Business and Economics.

**Second Bachelor’s Degree**

Students who have received a bachelor’s degree in another area may obtain a Bachelor of Arts degree in Business Administration by presenting total credits of at least 150 hours and by fulfilling the following departmental requirements: Acctg 230, 231; B Law 210; Dec S 215, 340; Econ 101, 102; 300-400-level electives; Fin 325, Math 201, 202; Mgt 301; 491 or 492; MIS 150, 350; Mktg 360; three Bus 400-level electives; two Bus 300- or 400-level electives; one Bus or Econ 300- or 400-level elective.

The second degree can usually be completed in less than two years, depending on the number of business requirements which may have been completed as elective for the first undergraduate degree. Students should consult the CBE Business Advising Office for specific requirements.

**Transfer Students**

Students planning to transfer to Washington State University at the end of the freshman or sophomore year should follow as closely as possible the general and core course requirements set forth above. If this is done, there should be no difficulty in completing the requirements for the bachelor’s degree within the normal period of four years. It should also be noted that courses taken at community colleges which are numbered at the 300-level or above at WSU will not be accepted toward meeting major requirements.

**Description of Courses**

Special Notice: Enrollment in 300-level business courses is restricted to students with junior standing. Enrollment in 400-level business courses is open only to juniors and seniors officially certified into degree programs that require these business courses.

**Accounting**

Acctg
230 Introduction to Financial Accounting 3
Introduction to corporate financial reporting via the preparation and interpretation of financial statements.
231 Introduction to Managerial Accounting 3 Prereq Acctg 230. Introduction to managerial accounting; generation and use of accounting data for planning and controlling business operations.
330 Intermediate Accounting I 3 Prereq Acctg 230; MIS 150. Theory underlying the determination of income; analysis of financial statements.
338 Cost Accounting 3 Prereq Acctg 231; Dec S 215; Math 107 or 201; 202; MIS 150. Management uses of cost information; cost systems and system design; cost analysis.
430 Advanced Accounting 3 Prereq Acctg 331. Partnership equities and extended forms of corporate ownerships and entities.
431 Accounting Theory 3 Prereq Acctg 331. Accounting theory and contemporary issues.
434 Accounting Organizations 3 Prereq Acctg 331. Conceptual and procedural accounting issues involving public sector organizations.
435 Advanced Tax Accounting 3 Prereq Acctg 335. Corporate, partnership, estate, trust, and fiduciary taxation.
436 International Accounting and Taxation 3 Prereq Acctg 231. Comparative accounting systems, foreign currency transactions, transfer pricing, taxation of foreign source income.
439 [M] Auditing 3 Prereq Acctg 331, 433; MIS 350. Nature of auditing, generally accepted auditing standards, and audit procedures as related to auditing of financial statements by independent accountants.
498 Accounting Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
530 Accounting Theory 3 Recent developments with respect to the determination of income and the valuation of assets.
531 Tax Planning for Managers 3 Prereq Acctg 230 and 231; or 550. Fundamentals of tax planning for business decisions; nontechnical and primarily for MBA graduate students.
532 Contemporary Accounting Cases and Problems 3 Accounting theory applied to external financial reporting practices.
533 Administrative Control 3 Managerial evaluation of budgeting, cost accounting, and financial analysis techniques; their utilization in control of operations.
535 Taxation of Partnerships and Partnerships 3 Prereq Acctg 335. Federal income tax impact on partners and partnerships of forming, operating, and liquidating partnerships.
536 Taxation of Corporations and Stockholders 3 Prereq Acctg 335. Federal income tax impact on corporations and their stockholders from forming, operating, and liquidating corporations.
537 Tax Research and Estate Planning 3 Legal tax research methodology; federal estate and gift taxation and retirement planning.
538 Seminar in Cost/Managerial Accounting 3 Cost concepts, cost and managerial accounting systems; current issues and research in cost and managerial accounting.
539 Seminar in Public Accounting and Auditing 3 Prereq Acctg 439. Public accounting and auditing to present; current issues including statistical sampling and computers.
530 (534) Introduction to Financial and Managerial Accounting 3 Fundamentals of financial and managerial accounting; primarily for graduate students who wish to meet the MBA core requirements in accounting.
596 Doctoral Topics 3 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in accounting.
600 Special Projects or Independent Study Variable credit. S, F grading.
702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.
800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

**Business Law**

**B Law**
210 Law and the Legal Environment of Business 3 Fundamentals of business law; the legal system, legal reasoning and the law of contracts, torts, and agency.
410 Law and Government Regulation of Business 3 Prereq B Law 210. Legal aspects of government regulation of business; administrative law, antitrust law, and labor law.
411 Law of Business Organizations 3 Prereq B Law 210. Law of partnerships, corporations, securities regulation, secured transactions and bankruptcy; needed by CPA candidates.
414 [M] Law of Real Estate 3 Prereq B Law 210. Legal principles and precedents as they apply to the real estate environment.

415 [M] Law of International Trade 3 Prereq B Law 210. Legal organization of the international community; international aspects of trade and development, economic cooperation, and technical, social, and cultural cooperation.

416 [M] Public International Law 3 Prereq B Law 210. Law governing states, intergovernmental organizations, and nongovernmental organizations (including multinational enterprises); human rights law; environmental law; and dispute settlement.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Law for the Business Manager 3 Contract, tort, constitutional and administrative law; impact of government regulation on business.

Decision Sciences

215 Statistics 4 (3-3) Prereq Math 201. Data presentation, probability, distributions, inferences, and linear regression as applied to business and economics.

340 Operations Management 3 Prereq Dec S 215. Management of production and service operations with an emphasis on quality management; planning and control of workflow; resource allocation, and utilization.

344 Principles of Optimization 3 Same as Math 364.


417 Introduction to Simulation 3 Same as Math 416.

418 Quality Improvement for Management 3 Prereq Dec S 215. Total quality management as used in industries; philosophy of Deming and others, control charts, process capability analysis, team tools.


451 Business Statistical Analyses 3 Prereq admission to MBA program. Advanced preparation for graduate-level business analyses, applied finite math and statistics principles.

498 Quantitative Methods Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

516 Time Series 3 Prereq Dec S 515 or Stat 443. ARIMA models; identification, estimation, diagnostics, and forecasting; seasonal adjustments, outlier detection, intervention analysis and transfer function modeling.

517 Quality Improvement for Management 3 Philosophy and evolution of quality control, control charts, process capability analysis, applications.

518 Techniques of Sampling 3 Prereq Dec S 591. Sample surveys for business use; theory and application with emphasis on appropriate sample types and the estimation of their parameters.

519 Applied Multivariate Analysis 3 Prereq Dec S 591 or Stat 443. Principal components, factor analysis, discriminant function, cluster analysis, multivariate normal distribution, Hotelling’s T2 and MANOVA.

540 Quantitative Methods II 3 Prereq Dec S 340. Decision analysis, linear optimization models, nonlinear models, network analysis including PERT, and dynamic programming as applied to business.


581 Operations Management 3 Prereq Dec S 340. Analytical approach to solving problems in production and operations management.

586 Applied Multiple Time Series Analysis 3 Prereq Dec S 516. Approaches to modeling and analysis of multiple time series.


596 Doctoral Topics V 1-4 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in decision sciences.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Finance

325 Finance 3 Personal Finance 3 For nonbusiness majors. Consumer credit, financial institutions, investments, mutual funds, insurance, social security, home ownership, taxes, estate planning.

325 Finance 3 Prereq Acctg 231 or c//; Dec S 215 or c//; Econ 101. Financial decision making; financial strategies, investment in current and fixed assets, financial instruments, and capital markets.

409 Real Estate Finance 3 Same as RE 409.

421 Financial Institutions and Markets 3 Prereq Fin 325. Level and term structure of interest rates; characteristics of financial institutions and markets; financial futures.

422 Commerical Bank Management 3 Prereq Fin 325. Problems facing bank managers and solution techniques; asset and liability management; loan pricing; banking structure; bank regulation.


426 Entrepreneurial Finance 3 Prereq Acctg 231; Fin 325. Raising capital for new enterprises; venture capital, IPOs, debt financing, leasing and valuing start-up ventures.


481 International Finance 3 Same as I Bus 481.

498 Finance Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

502 Financial Management 3 Prereq Acctg 550; Econ 101. Financial management of the firm; capital budgeting, working capital management, capital acquisition, and dividend policy.

521 Interest Rates and Financial Markets 3 Prereq Fin 325. Real and nominal interest rates; bond pricing; term and risk structure of interest rates; investment and commercial banking; financial futures.


526 Problems in Financial Management 3 Prereq Fin 325. Application of financial principles to problems in financial management; credit policy, capital budgeting, leasing and mergers, cash management.

527 Investment Analysis 3 Prereq Fin 325. A decision-making approach to the problems of asset management for personal and business portfolio.

528 Portfolio Theory and Financial Engineering 3 Prereq Fin 325, 427, or 527. The theory of portfolio management and the use of derivative securities in portfolio risk management.

581 International Finance 3 Same as I Bus 581.

596 Doctoral Topics V 1-4 May be repeated for credit; cumulative maximum 16 hours. Advanced topics in finance.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Insurance

320 Risk and Insurance 3 Prereq B Law 210; Econ 102. Types of risk and methods of protection; life, health, property, and liability insurance; principles of risk management.

321 Life Insurance and Financial Planning 3 Prereq Ins 320. Management of the life, health, and disability insurance risks facing the individual, business, and society; financial planning.

322 Property and Liability Insurance 3 Prereq Ins 320. Management of property and liability risks facing individuals and businesses; study of bonds; marine, workers compensation and unemployment insurance.

498 Insurance Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

520 Employee Benefits Risk Management 3 Social and group insurance and retirement plans in the context of employee benefits risk and insurance management.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

International Business

1 Bus

380 [M] International Business 3 International political economy; business relationships between nations; corporations and economic institutions.

415 Law of International Trade 3 Same as B Law 415.

416 [M] Public International Law 3 Same as B Law 416.

435 International Tourism 3 Same as HA 435.

436 International Accounting and Taxation 3 Same as Accgt 436.

453 Comparative International Management 3 Same as Mgt 453.

470 International Trade and Finance 3 Same as Econ 470.

471 (370) The Economics of Regional Integration 3 Same as Econ 471.

481 International Finance 3 Prereq Fin 325; 1 Bus 380. Financial problems of multinational businesses; international financial environment. Long-term capital commitment to an international venture, financial techniques for firm operation.

482 [M] International Marketing 3 Prereq I Bus 380; Mktg 360. Opportunities, characteristics, trends in foreign markets; alternative methods; strategies; organizational planning, control; problems of adapting American marketing concepts and methods.

492 Small Business Policy 3 Same as Mgt 492.

496 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

498 International Business Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

580 International Business Management 3 Decision making in the international environment; political, cultural, and economic risk management.

581 International Finance 3 Prereq Fin 502, 1 Bus 380 or 580. Principles of international finance; financial management of multinational corporations; international investments.

582 International Marketing Management 3 Prereq Mktg 505. Principles of international marketing, marketing decision making in international environments, problems of adapting marketing programs to international markets.

600 Special Projects or Independent Study Variable credit. S, F grading.

Management

Mgt 101 Introduction to Business 3 Introduction to the practice of business with explanations of business environments, strategy, organization, functional areas, terminology, processes, tasks and ethics.

301 Principles of Management and Organization 3 Principles of management and administration aimed at improving effectiveness of all types of organizations.

315 Women in Management and Leadership 3 Same as WS St 315.

401 [M] Leadership Skills for Managers 3 Prereq Mgt 301. Leadership, motivation, team building, group dynamics, interpersonal and ethical conflict, and job design.

450 Personnel and Human Resources Management 3 Prereq Dec S 215; Mgt 301. Policy and practice in human resource utilization, selecting, training, motivating, evaluating, and compensating employees; labor relations; EEO legislation.

453 Comparative International Management 3 Cross-cultural implications of management theories and approaches; the role of national culture in management theory and practice.

455 Staffing 3 Prereq Mgt 450 or c//. Selection issues; methods of forecasting, planning, recruitment, selection; analysis of psychometric properties of tests; techniques for assessing reliability and validity.

456 [M] Compensation Administration 3 Prereq Mgt 450 or c//. Theoretical, research, and applied credit in relation to the compensation of employees.


485 Seminar in Negotiations 3 Bargaining skills across a broad range of business settings; experiential work. Credit not granted for both Mgt 485 and 585.

487 Business Ethics 3 Prereq Mgt 301. The nature and sources of ethical conflicts and dilemmas individuals and organizations confront in the business context. Credit not granted for both Mgt 487 and 587.

499 Special Problems V 1-4 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in management.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Management Information Systems

MIS

150 Technological Survival Skills for Today’s Manager 2 (1-2) Prereq Cpt S 105 or successful completion of MIS 150 entrance exam. Application of management information systems technology to solve typical management and business problems.

153 BASIC Programming 2 Same as Cpt S 153.

271 (Mgt 371) Applications Program Development 3 Advanced program design principles; relative files, screen formatters, report writers, and designing to reduce future maintenance requirements.

350 (Mgt 350) Business Information Systems 3 Prereq MIS 150. Management information systems foundations; current trends; MIS technology fundamentals; applications to business functions and management practice.

372 (Mgt) [M] Database Management Systems 3 Prereq MIS 350. Database management systems and non-procedural languages; principles of file design and optimization.
375 Electronic Commerce and the Internet 3
Prereq MIS 350. Capabilities of the Internet to support and enable electronic commerce; effective design and implementation; management issues.

448 (Mgt) Introduction to Management Information Systems 3
Prereq Mgt 301, MIS 350. Information problems, management of the information resource, uses of computer-based systems to improve management decision-making.

472 (Mgt) [M] Systems Analysis and Design 3
Prereq MIS 372; two of Cpt S 150, Cpt S 153, MIS 271. The application of systems analysis and design to the development of information systems; systems development life cycle.

474 (Mgt) Telecommunications and Networking in Business 3
Prereq MIS 350. Data communications; infrastructure, and protocols; network topologies and management; business applications of communication technologies.

498 Management Information Systems Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

507 (Mgt) Computers and Systems for Managers 3
Data base concepts, management information systems, design of application programs, and computer concepts.

572 Database Management Systems 3
Prereq admission to MBA program. Database management, data modeling, system design and implementation; the application of DBMS technologies to organizational and business problems.

574 Business Telecommunications and Electronic Commerce 3
Prereq admission to MBA program. Data communications fundamentals and their application to the design and implementation of electronic commerce systems.

580 (Mgt) Information Systems Management 3
Data processing organization; operations, application development, computer selection, management of computer personnel and systems.

Marketing
Mktg
327 Services/Nonprofit Marketing 3
Marketing applications in the service sector. Cooperative course taught by UI (Bus 327), open to WSU students.

360 Marketing 3
Functions, methods, and middlemen used in marketing the principal types of goods; price policies, cost of marketing; government regulation.

368 Marketing Research 3
Prereq Dec S 215; Mktg 360. Survey and experimental methods as they relate to marketing research.

466 [M] Marketing Management 3
Prereq Mktg 360; 6 hours Mktg. Analysis of marketing policy; approaches to solution of marketing problems.

467 Consumer Behavior 3
Prereq Mktg 360. The investigation of social-psychological phenomena affecting consumer decision processes; learning theory and communication.

468 Public Policy and Marketing 3
Prereq Mktg 360. Productivity and efficiency in marketing; government regulation of marketing structure and of marketing policies and practices; consumer protection and welfare.

490 Retail Management 3
Prereq Mktg 360. Retailing system; organization, merchandising models, pricing, promotion, location, and control procedures; management decision processes.

507 [M] Sales Management 3
Prereq Mktg 360. The role of selling in the marketing mix; problems in planning, organizing, evaluating and controlling the sales force.

510 Entrepreneurship 3

596 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

597 Marketing Yourself 1
Career opportunity assessment, position research, resume, application letter, interviewing skills, motivation, attitudes for success, solicitation and assessment of others.

498 Marketing Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

505 Survey of Marketing 3
Marketing management; relevance of marketing to company profitability and consumer satisfaction; decision regarding price, product, promotion, and distribution.

506 Marketing Management and Administrative Policy 3
Marketing management and administrative policies as they relate to concepts, strategies, and decision making.

560 Research Methodology 3
Prereq Dec S 215. Types of data needed and available, collection and analysis of data as they relate to decisional research.

565 Seminar in Marketing 3
May be repeated for credit; cumulative maximum 9 hours. Marketing structure and behavior from economic and behavioral perspectives; social evaluation and behavioral implications of marketing strategy.

567 Consumer Behavior Theory 3
Prereq Mktg 505. Theory in consumer and buyer behavior; conceptual and empirical research role of purchase and consumption behavior on society and marketing.

596 Doctoral Topics 3
May be repeated for credit; cumulative maximum 15 hours. Advanced topics in marketing.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Real Estate
R E
305 Real Estate 3
Prereq B Law 210; Econ 102. Relationships between location and value; patterns of urban land use; legal, financial, and organizational framework of the real estate business.

405 [M] Real Estate Valuation 3
Prereq Fin 325; R E 305. Principles and practices of real property valuation; factors affecting real property values and income; appraisal and location theory.

406 Real Estate Administration 3
Prereq R E 305. The case method of analyzing management policies, practices, and decision making in real estate firms.

407 Real Estate Investments 3
Prereq Fin 325; R E 305. Instruments, techniques, and institutions of real estate investment; forms of ownership, tax law, decision-making tools and applications.

408 Valuation of Income Property 3
Prereq Fin 325, R E 405. Appraisal of commercial, industrial, retail and multi-family properties; analysis of business values, construction costs and discounted cash flow analysis.

409 Real Estate Finance 3
Prereq Fin 325. Analysis of primary and secondary mortgage markets, financing techniques, mortgage securities, mortgage risk, and real estate portfolios.

498 Real Estate Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

522 Advanced Topics in Real Estate V 3
Basic forces that motivate and affect investors in their use and possession of real estate.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Department of Chemical Engineering


The curriculum in chemical engineering provides thorough knowledge of basic science and engineering. This includes material and energy balances, chemical and physical equilibria, rate processes, and economic balances. With such training, graduates may participate in the design and operating of chemically based products or they may engage in research leading to new or improved chemical processes, products, and uses. Graduates may also find rewarding work in plant operation, plant management, university teaching, sales-service, and other functions requiring chemical engineering training. The curriculum in chemical engineering in the College of Engineering is accredited by the Accreditation Board for Engineering and Technology (ABET).
The total number of majors in the department is restricted at the junior level. The department offers courses of study leading to the degrees of Bachelor of Science in Chemical Engineering, Master of Science in Chemical Engineering, and Doctor of Philosophy.

### Degree Program Requirements

The Bachelor of Science degree in Chemical Engineering requires a total of 138 semester hours. At least 68 of the total hours required for this degree must be in 300-400-level courses.

#### CHEMICAL ENGINEERING DEGREE PROGRAM (138 HOURS) ▶️FYDA

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
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<td>Engl 101 [W] (GER)</td>
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**Second Semester**

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**Sophomore Year**

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<td>Ch E 211</td>
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<td>Ch E 298</td>
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<td>Econ 101 [S] or Econ 102 [S] (GER)</td>
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<td>E E 305</td>
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<td>Math Elective¹</td>
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<td>Tier III Capstone [H,G,S,K] (GER)</td>
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<td>Complete Writing Portfolio</td>
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<table>
<thead>
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<tbody>
<tr>
<td>Second Semester</td>
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<td>Ch E 301</td>
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<td>Ch E 334</td>
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<tr>
<td>Ch E 398</td>
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<tr>
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### Senior Year

#### First Semester

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<td>Ch E 432</td>
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<tr>
<td>Ch E 441</td>
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<tr>
<td>Ch E 450</td>
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<tr>
<td>Ch E 498</td>
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<tr>
<td>Ch E Elective⁵</td>
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#### Second Semester

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<tr>
<td>Ch E 433 [M]</td>
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<tr>
<td>Ch E 451 [M]</td>
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<tr>
<td>Ch E 498</td>
</tr>
<tr>
<td>Ch E Elective⁵</td>
</tr>
<tr>
<td>Ch E Elective⁵</td>
</tr>
</tbody>
</table>

¹ Choose from: Math 360, 375, 415, 430, 440, 441, 443, or 448.
² Chem 415, 421, 424, 425, or 427.
³ Any course from an engineering department other than chemical engineering is acceptable with the exception of the following courses: BSysE 110, 120, 210, 310, 441; ChE 120, 174, 201, 462, 463, 464, 471, 480; E E 110, 120, 380; MSE 110, 120, 309, 450; M E 103, 120, 301, 313. Chemical engineering courses may be used to satisfy this requirement (but cannot be counted as a Chemical Engineering Elective as well) as long as a course from an engineering department other than Chemical Engineering is taken as a technical elective.
⁴ Must be approved by advisor prior to enrollment in the class.
⁵ Bio S 103, 104, or Micro 101.

### Certification

Specific requirements for certification in chemical engineering can be obtained from the departmental office although eligibility usually occurs at the end of the sophomore year. Criteria for certification include overall g.p.a., grades earned in mathematics and physical science courses, and performance in the Ch E 201 course. A certified student earning a g.p.a. of less than 2.0 for any two semesters is subject to decertification.

### Transfer Students

Students who are planning to transfer to Chemical Engineering at Washington State University from other institutions should coordinate their programs with the department chair to establish a schedule of studies leading to the bachelor’s degree. This is desirable because of sophmore professional requirements and course sequences. A strong preparation in chemistry, mathematics, and physics is necessary prior to transfer to minimize the time required at Washington State University to complete bachelor’s degree requirements. Inquiries concerning specific questions are welcomed. Since there is a restriction on the total number of majors in the department, transfer students should make application for admission as soon as possible.

### Preparation for Graduate Study

As preparation for work toward an advanced degree, a student should have completed substantially the equivalent of the above schedule of studies. A Bachelor of Science degree in Chemical Engineering from an institution accredited by ABET normally will satisfy this requirement.

Special programs are also available for students with bachelor’s degrees in chemistry or other areas of science who wish to obtain the Master of Science degree in Chemical Engineering.

### Description of Courses

#### Chemical Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch E 201</td>
<td>Chemical Process Principles and Calculations 3 Prereq Chem 106; Math 172. Fundamental concepts of chemical engineering; problem-solving techniques and applications in stoichiometry, material and energy balances, and phase equilibria.</td>
</tr>
<tr>
<td>Ch E 310</td>
<td>Introduction to Transport Processes 3 Prereq Ch E 201 or c/l; Math 315; major in Ch E. Fundamentals of the phenomena governing the transport of momentum, energy, and mass.</td>
</tr>
<tr>
<td>Ch E 322</td>
<td>Fluid Mechanics and Heat Transfer 3 Prereq Ch E 201 or c/l; Ch E 310 or c/l; Ch E major. Design calculations, operations, and evaluation of equipment used in fluid flow, heat transfer, and evaporation.</td>
</tr>
<tr>
<td>Ch E 331</td>
<td>Chemical Engineering Separations 3 Prereq Ch E 310, 332. Design and evaluation of equipment used in distillation, extraction, absorption, and adsorption.</td>
</tr>
</tbody>
</table>

### Technical Seminar

1 May be repeated for credit; cumulative maximum 2 hours. S, F grading.

### Chemical Engineering Thermodynamics

3 Prereq Ch E 201; Ch E 331; major in Ch E. Definitions, basic concepts, and laws; property relationships; construction of thermodynamic charts and tables; compression and liquefaction of gases; phase equilibria; reaction equilibria.

### Introduction to Transport Processes

3 Prereq Ch E 201 or c/l; Math 315; major in Ch E. Fundamentals of the phenomena governing the transport of momentum, energy, and mass.

### Fluid Mechanics and Heat Transfer

3 Prereq Ch E 201 or c/l; Ch E 310 or c/l; Ch E major. Design calculations, operations, and evaluation of equipment used in fluid flow, heat transfer, and evaporation.

### Chemical Engineering Separations

3 Prereq Ch E 310, 332. Design and evaluation of equipment used in distillation, extraction, absorption, and adsorption.

### Technical Seminar

1 May be repeated for credit; cumulative maximum 2 hours. S, F grading.

### Materials Processing

3 Prereq Chem 105, 106; Ch E major. Processing of polymeric and ceramic materials; corrosion prevention and materials selection.

### Kinetics and Reactor Design

3 Prereq Chem 331; Math 315; major in Ch E. Chemical reaction kinetics applied to the design of reactors, non-ideal flow, mixing, catalysis.

### Chemical Engineering Lab I

3 (1-6) Prereq Ch E 310, 332; Ch E 334 or c/l; Ch E 421 or c/l. Statistical design and analysis of experiments; safety; experiments in heat and mass transfer; separations, other unit operations, kinetics, control; report writing.

### Chemical Engineering Lab II

2 (0-6) Prereq Ch E 432. Laboratory experiments in heat and mass transfer, separations, other unit operations, kinetics, control; design calculations and report writing.
435 Modern Separation Processes 3 Prereq Ch E 301, 310, 332; Ch E major. Design and operation of separation processes important to emerging technologies; bioseparations, supercritical extraction.

441 Process Control 3 Prereq BSysE 310 or Ch E 211. Measuring instruments, automatic control, process and instrument characteristics and theory applied to industrial control problems.

450 Chemical Process Analysis and Design I 3 Prereq Ch E 301, 334; 421 or c/c. Chemical engineering design; computer tools; safety and environmental constraints; cost and equipment optimization.


461 Introduction to Nuclear Engineering 3 Same as M E 461.

465 Integrated Envirochemical Engineering 3 Prereq Ch E 334. Application of chemical engineering principles in assessment and remediation of industrial problems in air pollution, water pollution, and solid and hazardous waste.


470 Hazardous Waste Management 3 Prereq Math 360, senior in engineering. Principles and practices of management of hazardous and solid wastes. Cooperative course taught jointly by WSU and UI (ChE 470).

471 Air Pollution Control 2 or 3 Prereq M E 303. Analysis and design of physical and chemical methods of air pollution control; particulate and gas emission control methods, standards for sources. Cooperative course taught jointly by WSU and UI (ChE 475).

472 Introduction to Biochemical Engineering 3 Prereq Ch E 310, 332. Application of chemical engineering principles to the processing of biological and biochemical materials.

476 Biomedical Engineering Principles 3 Prereq Ch E 301, 310. The application of chemical engineering principles to biological processes in the human body.

481 Special Topics in Chemical Engineering V 1-3. Interfacial phenomena, high temperature materials processing, integrated circuit manufacturing, in situ destruction of hazardous waste.

485 Interfacial Phenomena 3 Prereq Ch E 301, 310. Chemical and physical nature of the interface including the molecular basis for interfacial forces and resulting macroscopic phenomena.

487 Food Process Engineering Design 3 Same as BSysE 482.

495 Chemical Engineering Internship 2 May be repeated for credit; cumulative maximum 4 hours. Students work full time in engineering assignments in approved industries with prior approval of advisor and industrial supervisor. S, F grading.

496 Cooperative Education Internship V 2-4 May be repeated for credit; cumulative maximum 4 hours. Off-campus Cooperative Education Internship with business, industry, or government unit. S, F grading.

498 Technical Seminar I May be repeated for credit; cumulative maximum 2 hours. For juniors and seniors in Ch E. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Transport Processes 3 Transport of mass, energy, and momentum; unsteady and steady states as applied to chemical processing; macroscopic and microscopic analyses. Cooperative course taught jointly by WSU and UI (ChE 515).

515 Convective Heat Transfer 3 Same as M E 515.

523 Basic Concepts in Catalysis 3 (2-3) Preparations and characterization of supported heterogenous catalysts, mechanistic interpretation of surface reactions and chemisorption, deactivation, and kinetics from lab experiments. Cooperative course taught by WSU, open to UI students (ChE 523).

525 Polymer Reaction Engineering 3 Prereq Ch E 421. Reaction engineering applied to polymerization reactions; effects on polymerization rate, molecular weight, and copolymer composition. Cooperative course taught by WSU, open to UI students (ChE 525).

526 Microscopic Thermodynamics 3 Same as M E 526.

527 Macroscopic Thermodynamics 3 Same as M E 527.

529 Chemical Engineering Kinetics 3 Interpretation of kinetic data and design of nonideal chemical reactors; fundamentals of heterogeneous catalysis, catalyst preparation, characterization, and theory. Cooperative course taught jointly by WSU and UI (ChE 529).

541 Chemical Engineering Analysis 3 Mathematical analysis of chemical engineering operations and processes; mathematical modeling and computer application.

546 Mass Transfer Operations 3 Diffusional and equilibrium operations. Cooperative course taught jointly by WSU and UI (ChE 546).

551 Discrete Digital Control 3 (2-3) Prereq Ch E 441. Design and implementation of digital control algorithms; Z-transforms; state space methods. Cooperative course taught by WSU, open to UI students (ChE 551).

552 Process Optimization 3 Fundamentals associated with the optimization of chemical process plants.

560 Biochemical Engineering 3 Chemical engineering applied to bioloigcal systems; fermentation processes, biochemical reactor design, downstream processing, transport phenomena in biological systems, biochemical technology. Cooperative course taught jointly by WSU and UI (ChE 560).

571 Advanced Plant Design 2 or 3 Design of process plants for optimum cost and economic return; scale-up of pilot plants. Cooperative course taught by the UI (ChE 571), open to WSU students.

574 Protein Biotechnology 3 Same as BC/BP 574.

581 Advanced Topics in Chemical Engineering V 1-3 May be repeated for credit; cumulative maximum 9 hours. Filtration, reaction engineering, two-phase flow, non-Newtonian fluids, interfacial phenomena, fluidization, novel separations, biochemical engineering.

598 Research Seminar I May be repeated for credit. Seminar presentations on current topics in chemical engineering research. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Chemistry


Chemistry is the fundamental science of matter, the nature of substances, and the changes occurring in them. Chemical reactions are the basis of all life on Earth. Everything we are or do depends in one way or another on chemistry. A major in chemistry or biochemistry prepares you for a variety of careers in industry, education, ecology, and public service, or for graduate study and research in chemistry and many related fields.

The department has excellent facilities and special equipment for study and research at both the undergraduate and graduate level. There are active research programs in both traditional and emerging areas of chemistry. Students in chemistry at WSU are encouraged to take advantage of its excellent facilities and faculty by beginning research projects as early as possible. Research expands experience beyond the classroom into the realm of new knowledge. Typical areas for research are:

Analytical chemistry, which focuses on the identification and measurement of chemical species wherever they are found. It involves the development and application of new methods of detection and measurement, the application of analytical methods in biological environments, and the use of nuclear and radio-chemical techniques in a wide range of applications.

Environmental chemistry, which applies knowledge of chemical interactions to the study of the environment, is fundamental to any efforts to protect and improve environmental integrity. It involves the analysis of any materials found in the environment, whether as the result of human activity or as the result of natural processes. It focuses on the identification and measurement of chemical materials in rocks and minerals, in natural waters, and in the atmosphere.

Inorganic chemistry, which has as its center the study of the vast majority of the known elements, involves investigations into the mechanisms of electron transfer in complex materials. It is closely related to bioinorganic chemistry which includes the study of metal containing proteins by advanced
nuclear resonance techniques and investigations of the way in which bleach acts as a disinfectant.

Materials chemistry, which brings the knowledge and understanding of chemistry to the study of the structure and properties of materials. It involves the study of chemical reactions occurring at surfaces by both experimental and theoretical means. It includes important phenomena such as energy transfer in light absorbing and emitting materials and it extends to the synthesis of new and improved materials.

Organic chemistry, which deals with the many compounds of carbon. It includes the study of compounds which include metals such as boron, iron, copper and lithium, and it has application to the synthesis of biologically important compounds such as unusual nucleic acids.

Physical chemistry, which applies the methods and theories of physics to the study of chemical materials. It involves theoretical studies of chemical bonding using advanced computer methods and the investigation of the structures of solids and surfaces by a variety of instrumental methods including light absorption and emission, X-ray techniques, and surface characterization.

The department is on the approved list of the American Chemical Society.

The department offers courses of study leading to the degrees of Bachelor of Science in Chemistry, with options in materials chemistry and environmental chemistry, Master of Science in Chemistry, Master of Arts in Chemistry, and Doctor of Philosophy (Chemistry).

The Department of Chemistry offers a program leading to both a Bachelor of Science and Master of Science in Chemistry within a period of five years. Students wishing to enroll in the program must declare their intentions at the end of the junior year and begin research for the MS thesis while still undergraduates. The program is designed so that the BS degree will normally be awarded at the end of four years and the MS approximately 15 months later. In order to enter this program the student’s undergraduate record must show that the final transcript will satisfy the requirements for admission to the WSU Graduate School. Further information on this program can be obtained from the Department of Chemistry.

The program leading to the Master of Arts in Chemistry is designed specifically for teachers in the secondary schools who wish to improve their preparation in chemistry. The program, which combines on-campus study (summers) with distance learning opportunities (school year), includes an industrial internship and a curriculum development project.

A student beginning undergraduate work will begin the study of chemistry with Chem 101, 105 or 115, depending on preparation. In order to take most courses in chemistry above the 100-level, the student must complete one of the following sequences: Chem 101, 105 and 106; 102, 106; 105 and 106; 115 and 116.

The Department of Chemistry provides major parts of the course work leading to degrees in the Department of Biochemistry and Biophysics and the Program in Materials Science. Students whose interests span chemistry and biology or chemistry and physics should see the section on the appropriate program in this catalog.

**Minor in Chemistry**

Completion of a minor in chemistry requires at least 17 hours from 200-level and above chemistry courses. Three hours from BC/BP 364, 366, 563, or 564 and up to 2 hours of Chem 499 may be used to satisfy this requirement.

**LAB CHARGES**

A charge for expendable laboratory supplies is made in each laboratory course.

**Degree Program Requirements**

At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses.

A student undertaking this curriculum after the beginning of the freshman year should consult with the department undergraduate coordinator to arrange a schedule which will permit completion of required courses in proper sequence. Course sequencing is particularly important in this option for physical chemistry (Chem 331 and 332). Calculus through multivariable calculus (Math 273) and calculus-based physics (Phys 201 and 202) are essential preparation for physical chemistry. This curriculum leads to a degree for which students will be certified to the American Chemical Society.

**GENERAL CHEMISTRY OPTION (120 HOURS)**

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<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<td>Bio S 102 [B] or 103 [B] (GER)</td>
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<tr>
<td>Chem 333</td>
<td>1</td>
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<tr>
<td>Chem 398</td>
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<tr>
<td>Complete Writing Portfolio</td>
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</table>

**ENVIRONMENTAL CHEMISTRY OPTION (125 HOURS)**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Freshman Year</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Chem 332</td>
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<tr>
<td>Chem 334 [M]</td>
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</tr>
<tr>
<td>Chem 499</td>
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<tr>
<td>Engl 301 [W] or 402 [W] (GER)</td>
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<tr>
<td>Intercultural</td>
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</tr>
<tr>
<td>Chem 401</td>
<td>3</td>
</tr>
<tr>
<td>Chem 410 [M]</td>
<td>3</td>
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<td>Chem 495</td>
<td>2</td>
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<tr>
<td>Chem Electives</td>
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</tbody>
</table>

**Second Semester | Hours |
| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 |
| Chem 332 | 3 |
| Chem 334 [M] | 1 |
| Chem 499 | 2 |
| Engl 301 [W] or 402 [W] (GER) | 3 |
| Intercultural | 3 |

**Senior Year**

| First Semester | Hours |
| Chem 425 | 2 |
| Chem 426 | 2 |
| Chem 499 | 2 |
| Tier III Capstone (GER) | 3 |
| Electives | 6 |
| Second Semester | Hours |
| Chem 401 | 3 |
| Chem 410 [M] | 3 |
| Chem 495 | 2 |
| Chem Electives | 7 |

1Highly qualified students are encouraged to take Chem 115 and 116 in place of Chem 105 and 106.

2Offered alternate years only. Students may take this course during the second semester of their junior year.

3Electives must include 3 hours of advanced chemistry courses based on physical (Chem 332) or organic (Chem 340) chemistry. The following chemistry courses meet this requirement: Chem 405, 415, 417, 430, 461, 480, 481, 482, as does any 200-level chemistry course. One Math or Physics course requiring calculus may be substituted for this course. Students should consult the associate chair regarding the selection of a Math or Physics course to satisfy this requirement.

**Second Semester | Hours |
| Arts & Humanities [H,G] (GER) | 3 |
| Bio S 104 [B] (GER) | 4 |
| Chem 106 [P] (GER) or 116 | 4 |
| GenEd 110 [A] (GER) | 3 |
| Elective | 1 |

**Sophomore Year**

| First Semester | Hours |
| Chem 240 | 3 |
| ES/RP 101 [B] (GER) | 4 |
| Math 140 [N] (GER) | 4 |
### Elective 1

<table>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>Chem 105 [P] (GER) or 115</td>
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### Sophomore Year

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<td>Ch E 201</td>
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<tr>
<td>Math 220</td>
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<td>Phys 201 [P] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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### Junior Year

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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Chem 338</td>
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<td>Chem 398</td>
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<tr>
<td>Math 171 [N] (GER)</td>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Complete Writing Portfolio</td>
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### Senior Year

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<tbody>
<tr>
<td>Chem 425</td>
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<tr>
<td>Complete Writing Portfolio</td>
</tr>
</tbody>
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### Preparations for Graduate Study

As preparation for work toward an advanced degree, it is expected that the student shall have completed courses totaling 40 semester hours of chemistry including inorganic, qualitative, quantitative, organic, and physical chemistry. The student should also present 8 hours of physics, mathematics through calculus, and have a reading knowledge of scientific German, French or Russian. It is desirable that students interested in inorganic, analytical, organic, or physical chemistry present advanced courses in chemistry, computer science, mathematics, or physics; advanced biological science courses are important preparation for students who propose to undertake graduate study in the field of biochemistry.

### Biochemistry

For course descriptions and schedule of studies in biochemistry, see Department of Biochemistry and Biophysics.

### Description of Courses

#### General and Inorganic Chemistry

**Chem 101 [P]** Introduction to Chemistry 4 (3-3)
Prereq math placement beyond Math 101 or c/l in 101. Basic chemical concepts; atomic theory, periodicity, reaction stoichiometry, gases, solutions, acids, bases, pH, equilibrium, kinetics, energy, applications to life sciences. Cooperative course taught by WSU, open to UI students (Chem 101).

**Chem 102 [P]** Chemistry Related to Life Sciences 4 (3-3)
Prereq Chem 101, 105, or 115. Organic functional groups and their reactions; polymers, carbohydrates, lipids, proteins, enzymes, nucleic acids, hormones, applications to life sciences. Cooperative course taught by WSU, open to UI students (Chem 102).

**Chem 105 [P]** Chemical Principles Honors I 4 (3-3)
Prereq Chem 101, 105 or 115. Math 107 or c/l. Stoichiometry, structure, gases, liquids, solids, solutions, thermodynamics, kinetics, equilibrium, volumetric, and gravimetric analysis. Credit not granted for both Chem 105 and 115. Cooperative course taught by WSU, open to UI students (Chem 114).

**Chem 115 Chemical Principles Honors I 4 (3-3)**
Prereq one year high school chemistry or Chem 101; Math 107 or c/l. Stoichiometry, structure, chemistry. Credit not granted for both Chem 105 and 116. Cooperative course taught by WSU, open to UI students (Chem 115).

**Chem 116 Chemical Principles Honors II 4 (3-3)**
Prereq Chem 105 or 115; Math 107 or higher placement. Acid-base, ionic, molecular, solubility, oxidation/reduction equilibria; kinetics, electrochemistry; systematic chemistry of the elements; coordination compounds. Credit not granted for both Chem 115 and 105. Cooperative course taught by WSU, open to UI students (Chem 114).

**Chem 333** 3 (2-3)
Topics as for Chem 105, enriched by special lectures and demonstrations. For students with adequate background in science and mathematics. Credit not granted for both Chem 115 and 105.

**Chem 334** 1 (1-3)
Topics as for Chem 105. Cooperative course taught by WSU, open to UI students (Chem 114).

**Chem 338** 3 (2-3)
Topics as for Chem 105. Cooperative course taught by WSU, open to UI students (Chem 114).

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Prereq one year high school chemistry; Math 107 or c/l. Topics as for Chem 105, enriched by special lectures and demonstrations. For students with adequate background in science and mathematics. Credit not granted for both Chem 115 and 105.

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Topics as for Chem 105. Cooperative course taught by WSU, open to UI students (Chem 114).

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**Chem 333** 3 (2-3)
Topics as for Chem 105, enriched by special lectures and demonstrations. For students with adequate background in science and mathematics. Credit not granted for both Chem 115 and 105.

**Chem 334** 1 (1-3)
Topics as for Chem 105. Cooperative course taught by WSU, open to UI students (Chem 114).

**Chem 398** 1 (1-3)
Topics as for Chem 105. Cooperative course taught by WSU, open to UI students (Chem 114).
401 Modern Inorganic Chemistry 3 Prereq Chem 332 or c//. Properties of substances; periodic systems; oxidation-reduction and acid-base characteristics interpreted on the basis of atomic and molecular structure.

410 [M] Advanced Synthesis and Characterization 3 (1-6) Synthesis and characterization of organic and inorganic compounds and solid-state materials; modern synthetic technology, characterization methods, and laboratory techniques.


503 Advanced Topics in Inorganic Chemistry V 1-3 May be repeated for credit. Rec Chem 501. Recent significant developments. Cooperative course taught by WSU, open to UI students (Chem 503).

504 Organometallic Chemistry 3 Prereq Chem 501. Structure, bonding, and reaction chemistry of organotransition metal compounds; applications to homogenous catalysis. Cooperative course taught by UI (Chem 568), open to WSU students.

507 Topics in Coordination Chemistry 3 Rec Chem 501. Principles, complex ions and coordination compounds; theory of acids and bases; bonding theory, nonaquo solvent; familiar elements; periodici- ty. Cooperative course taught by UI (Chem 564), open to WSU students.

508 Topics in Inorganic Chemistry V 1-9 Rec Chem 501. Coordination compounds; halogen; less familiar elements; catalysis, intersti- tial, nonstoichiometric compounds; chemical bonding; inorganic reaction mechanisms. Cooperative course taught by UI (Chem 565), open to WSU students.


Analytical, Environmental, and Radiochemistry


222 Quantitative Analysis Laboratory 2 (0-6) Prereq Chem 220 or c//. Cooperative course taught by WSU, open to UI students (Chem 253).

222 Trace Element Analysis 2 Rec Chem 425. Techniques for the analysis of inorganic materials at trace levels. Credit not granted for both Chem 415 and 515.

241 Trace Organic Analysis 2 Rec Chem 425. Methods for the determination of trace amounts of organic compounds. Credit not granted for both Chem 416 and 516.

421 Radiochemistry and Radiotracers 2 Prereq Chem 331. Credit not granted for both Chem 421 and 521.

422 Radiochemistry Laboratory 1 (0-3) Prereq Chem 222, 331; Phys 202. Credit not granted for both Chem 422 and 522.

424 Activation Analysis 2 (1-3) Prereq Chem 331 or 421. Credit not granted for both Chem 424 and 524.

425 Quantitative Instrumental Analysis 2 Prereq Chem 332 or c//, or Chem 336 or c//. Computer interfacing applicable to chemical in- strumentation; principles and applications of modern chromatography, spectrophotometry and electrochemical techniques.

426 Quantitative Instrumental Analysis Laboratory 2 (0-6) Prereq Chem 425 or c//. Laboratory experience in modern analytical methods.


489 Environmental Chemistry Project 2 (0-6) Prereq Chem 482. Laboratory projects in en- vironmental chemistry or environmental ana- lytical chemistry.

512 Bioanalysis 2 Rec Chem 220 or 425. Methods for the measurement of biological compounds.


515 Trace Element Analysis 2 Graduate-level counterpart of Chem 415; additional require- ments. Credit not granted for both Chem 415 and 515.

516 Trace Organic Analysis 2 Graduate-level counter- part of Chem 416; additional requirements. Credit not granted for both Chem 416 and 516.

517 Chromatography 2 Prereq Chem 425. Laboratory work in chromato- graphy.

518 Electrochemistry 2 Prereq Chem 425.

520 Advanced Analytical Chemistry 3 Prereq Chem 425. Statistics in chemical analysis; sampling; control of contamination and losses in analysis; electrochemical methods; separa- tion in analysis; spectroscopic techniques.

521 Radiochemistry and Radiotracers 2 Gradu- ate-level counterpart of Chem 421; additional requirements. Credit not granted for both Chem 421 and 521.

522 Radiochemistry Laboratory 1 (0-3) Graduate- level counterpart of Chem 422; additional requirements. Credit not granted for both Chem 422 and 522.

524 Activation Analysis 2 (1-3) Graduate-level counterpart of Chem 424; additional require- ments. Credit not granted for both Chem 424 and 524.

527 Environmental Chemistry 2 Graduate-level counterpart of Chem 427; additional require- ments. Credit not granted for both Chem 427 and 527.

529 Selected Topics in Analytical Chemistry V 1-3 May be repeated for credit. Selected cur- rent developments. Cooperative course taught by WSU, open to UI students (Chem 525).

Physical Chemistry

Chem 330 Problem Solving in Physical Chemistry 1 Prereq Chem 106 or 116; Math 172. Quanti- tative methods of data analysis and chemical concept development; emphasis on multi- variate, matrix, and computer methods.

331 Physical Chemistry 3 Prereq Math 172; Phys 202; c// in Chem 333. Concepts of physical chemistry; basic thermodynamics; free energy and entropy; phase equilibria; properties of solutions of electrolytes and non-electrolytes.

332 Physical Chemistry 3 Prereq Chem 331. El- ementary quantum theory; molecular structure and spectra; bonding theory; reaction rates; photochemistry and radiation chemistry; energy states and statistical thermodynamics.

333 Physical Chemistry Laboratory 1 (0-3) Prereq Chem 331 or c//. Experiments selected to meet the individual needs of students in BC/BP, Bio S, C E. Chem, or MSE.


336 Classical Physical Chemistry 2 Prereq Chem 331. Concepts and applications of classical physical chemistry; transport and kinetic properties; electrochemistry; colloids; poly- mers and macromolecules.


461 Atomic and Molecular Physics 3 Prereq Chem 332, Math 273. Basic concepts of atomic structure and spectroscopy; quantum mechanics of atomic phenomena. Credit not granted for both Chem 461 and 561.

480 Solid State Chemistry 3 Prereq Chem 332. Properties, bonding and synthesis of solid state material; crystalline and amorphous solids and coatings.

509 Chemical Group Theory 3 Rec Chem 332. Mathematical definitions of groups and repre- sentations, applications to chemical structure and spectra, ligand field theory, chemical re- actions and selection rules.

531 Advanced Physical Chemistry 3 Rec Chem 332. Physical chemistry; quantum mechanics, thermodynamics, chemical bonding, and elec- trochemistry.

532 Advanced Physical Chemistry 3 Rec Chem 332. Methods of quantum chemistry, atomic and molecular structure and spectra, chemical bonding, statistical mechanics, and kinetic theory, chemical kinetics.

534 Chemical Statistical Mechanics 3 Rec Chem 531, 532. Statistical theory of thermodynamic variables and chemical equilibrium; calcula- tion of equilibrium properties from spectral data; fluctuations about equilibrium; quantum statistics.


536 Quantum Chemistry 3 Rec Chem 332 or 531. Quantum mechanics applied to chemical systems: states of atoms and molecules, trans- missions and spectra.
Advanced Topics in Physical Chemistry V 1-3 May be repeated for credit. Selected subjects; irreversible thermodynamics; chemical bonding; NMR; ligand field theory; x-ray diffraction; neutron diffraction. Cooperative course taught by WSU, open to UI students (Chem 537).

Atomic and Molecular Physics 3 Graduate-level counterpart of Chem 461; additional requirements. Credit not granted for both Chem 461 and 561.

Atomic and Molecular Phenomena 3 Rec Chem 461, 509; Phys 450. Phenomena which yield information on structures, energy levels, and interactions of molecules in solid, liquid, and gaseous phases.

Organic Chemistry
Chem

Elementary Organic Chemistry 4 (3-3) Prereq Chem 102, or 106, or 116. Credit not granted for both Chem 240 and 340. Cooperative course taught by WSU, open to UI students (Chem 275 and 276).


Organic Chemistry Laboratory 2 (0-6) Prereq Chem 340.

Organic Chemistry 3 Prereq Chem 340; Rec Chem 341 or c/. Continuation of Chem 340.

Organic Chemistry Laboratory 2 (0-6) Prereq Chem 342 or c/.

Organic Reaction Mechanisms 3 Rec Chem 331, 342. The major classes of organic reaction mechanisms and their significance; kinetics and introductory theory.


Advanced Topics in Organic Chemistry V 1-3 May be repeated for credit. Rec Chem 540. Current research in organic chemistry. Cooperative course taught by WSU, open to UI students (Chem 544).

Spectroscopic Identification of Organic Compounds V 1-3 May be repeated for credit; cumulative maximum 3 hours. Rec Chem 342. Structural interpretation of 1H and 13C NMR, vibrational and mass spectra of organic compounds; audio-tutorial.

Chemistry for Teachers
Chem

General Chemistry from an Advanced Point of View 3 Prereq one year chemistry. Quantitative aspects of chemistry; first law of thermodynamics, solution theory, equilibrium, kinetics; electrochemistry and redox reactions; inquiry and problem solving.

Lab Preparations, Methods and Management 2 (0-6) Prereq one year Chem. Synthesis, analysis, and reactivity; reactions and methods appropriate for high school; microscale chemistry; time-saving techniques, inventory control, safety and disposal.

Physical Foundations of General Chemistry 1 Prereq Chem 411 or one year general chemistry; for preselected teachers. Physical basis of general and biophysical chemistry.

Lecture Demonstrations and Their Uses 1 (0-3) Prereq Chem 411, 413; for preselected teachers. Developments, methods and utilization of lecture demonstrations for secondary chemistry teachers.

Molecular Basis of Modern Materials and Devices 2 Prereq Chem 411; for preselected teachers. Atomic and molecular structure; the solid state; materials science; transition metals and coordination complexes.

Industrial Practicum 5 Prereq Chem 519; for preselected teachers. Industrial practicum for secondary chemistry teachers who are candidates for the MA degree in chemistry.

Analytical Methods and Instrumentation 3 (1-6) For preselected teachers. Analytical methods and instruments, their fundamental basis and applications to educational and industrial practice.


Survey of Biophysical Chemistry 3 Prereq BC/BP 572, Chem 419; for preselected teachers. Connection between structure and properties of biomolecules and methods of investigation.

Problems, Seminar, Research, and Thesis
Chem

Independent Study in Modern Chemistry V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq Chem 101, 105, 115, or c/. Independent study in the theory and practice of modern chemistry; written report required. S, F grading.

Undergraduate Seminar 1 Rec BC/BP or Chem major. S, F grading.

Cooperative Education Internship V 2-5 May be repeated for credit; cumulative maximum 16 hours. Off-campus internship with business, industry, or government unit coordinated through the Professional Experience Program. S, F grading.

Directed Research V 1-3 Prereq Chem 334 or c/. May be repeated for credit. Introduction to research and advanced laboratory methods; practice in written and oral scientific communication.

Special Problems V 1-4 May be repeated for credit. S, F grading.

Special Topics V 1-4 May be repeated for credit. Workshop in teaching methods in chemistry.

Introduction to Research Topics 1 Presentation and description of research areas and projects of current interest to faculty.

Seminar in Inorganic Chemistry 1 May be repeated for credit. Presentation and discussion of topics in inorganic chemistry taken from research in progress or current literature.

Seminar in Analytical Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in analytical chemistry taken from research in progress or current literature.

Seminar in Physical Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in physical chemistry taken from research in progress or current literature.

Seminar in Organic Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in organic chemistry taken from research in progress or current literature.

Special Projects or Independent Study Variable credit. S, F grading.

Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Civil and Environmental Engineering


Civil engineers plan, design, construct, and operate the physical works and facilities essential to modern life. Civil Engineers are responsible not only for creating the facilities required by a modern civilization, but also are committed to the conservation and preservation of the environment. Examples of these facilities include bridges, highways, buildings, airports, flood control structures, purification plants for drinking water, waste treatment and disposal facilities, offshore structures, tunnels, irrigation systems, space satellites, and launching facilities.

The program leading to the Bachelor of Science degree in Civil Engineering is accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

The objectives of the undergraduate degree program are to give students a thorough understanding in the fundamental principles upon which the profession is based and knowledge of the design processes that apply those principles. The curriculum has sufficient coverage of the various areas of civil engineering to allow graduates to pursue a life of learning and a productive professional career. Courses can be selected to provide in-depth studies in environmental, geotechnical, hydraulic, structural, and/or transportation engineering.

Design and planning are essential in the civil engineering profession. Accordingly, these activities are introduced in early Civil Engineering courses. As students advance, they face open-ended assignments with alternative solutions, feasibility studies, safety considerations, economics, social and environmental impacts and other concerns that test their creative ability. All students complete a senior design class in which much of earlier course work is applied.

Because of the ever-increasing knowledge required to practice at high levels of competence in the
specialized branches of civil engineering, an educational preparation of five or more years of college study is becoming more important. By an appropriate choice of electives the undergraduate curriculum may be integrated with a graduate program to provide a continuous schedule of studies leading to both the bachelor’s and master’s degrees.

The department offers courses of study leading to the degrees of Bachelor of Science in Civil Engineering, Master of Science in Civil Engineering, Master of Science in Environmental Engineering, and Doctor of Philosophy (Civil Engineering). The department participates in interdepartmental programs leading to the degrees of Master of Science in Environmental Science, and Master of Regional Planning.

**Degree Program Requirements**

All students completing the schedule of studies below earn a Bachelor of Science degree in Civil Engineering. At least 50 of the total hours required for this degree must be in 300-400-level courses. None of the courses listed below may be taken on a pass, fail basis.

**CIVIL ENGINEERING DEGREE PROGRAM (130 HOURS)**

**Freshman Year**

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**Second Semester**

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**Sophomore Year**

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**Second Semester**

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**Junior Year**

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<td>C E 341</td>
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<td>E 304 or M E 301</td>
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<tr>
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**Second Semester**

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**Senior Year**

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**Second Semester**

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**The Alternate Senior Year Environmental Engineering Emphasis**

The alternate senior year schedule shown below is offered to those students interested in studying with an environmental engineering emphasis. This would substitute for the senior year above and complete the study schedule for the Bachelor of Science degree in Civil Engineering.

<table>
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<th>Hours</th>
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**Transfer Students**

Students who are planning to transfer to civil engineering at Washington State University from other institutions should coordinate their program with the department chairperson to establish an integrated program leading to the bachelor’s degree. Inquiries concerning specific questions are welcome. A strong preparation in mathematics and physics is necessary prior to transfer to minimize the time required to complete the degree requirements. The requirements for direct entry into the Department of Civil and Environmental Engineering upon transfer are the same as listed above for certification. Applications from transfer students will be handled by the Admissions Office.

**Preparation for Graduate Study**

As preparation for academic work toward an advanced degree in civil engineering or environmental engineering, a student should have completed substantially the equivalent of the above schedule of studies.

**Description of Courses**


**Civil Engineering**

C E 120 Innovation in Design 2 Same as M E 120.

174 Introduction to Meteorology and the Atmospheric Environment 3 Introduction to meteorology, the atmospheric processes; weather, air pollution, and environmental topics.

211 Statics 3 Prereq Math 172 or c//; Phys 201 or c//. Engineering mechanics concepts; force systems; static equilibrium; centroids, centers of gravity; shear and moment diagrams; friction; moments of inertia. Cooperative course taught jointly by WSU and UI (ME 210).

212 Dynamics 3 Prereq C E 211. Kinematics and kinetics of particles and rigid bodies; introduction to mechanical vibration. Cooperative course taught jointly by WSU and UI (ME 220).

213 Statics and Mechanics of Materials 4 Prereq Math 172; Phys 201. Introduction to statics and mechanics of materials.

214 Introductory Dynamics 2 Prereq C E 211 or 213. Kinematics and kinetics of particles and rigid bodies.
215 Mechanics of Materials 3 Prereq C E 211. Concepts of stress, strain, and their relationships; axial loads, torsion and bending; combined stress; properties of materials; columns, repeated loadings. Cooperative course taught jointly by WSU and UI (ME 340).

301 (201) Surveying for Engineers 3 (2-3) Prereq ME 103, Math 171. Basic principles for using instruments and equipment in conducting engineering surveys; analyses of errors in measurements.


317 [M] Geotechnical Engineering I 3 (2-3) Prereq C E 215, 315 or c//. Structure, index properties, and classification of soils; compaction; effective stress; seepage; consolidation and shear strength.

322 Transportation Engineering 3 Prereq C E 260 or c//; 301. Transportation engineering; demand and performance functions; geometric design; capacity and control of transport modes.

330 Introduction to Structural Engineering 3 Prereq C E 215; Math 220. Introduction to structural analysis and design; statically determined systems; deflections; structural loads; design philosophies.

341 Introduction to Environmental Engineering 3 Prereq Bio S 103 or Micro 101; Chem 105. Impact of pollutants on the environment; pollution sources and sinks; engineering aspects of air and water quality; introduction to pollution control.

351 Water Resources Engineering 3 Prereq C E 315. Application of fluid mechanics to hydraulic infrastructure, principles of open channel flow, and introduction to surface and groundwater hydrology.

400 Highway Materials Engineering 3 (2-3) Prereq senior standing. Basic properties and mix designs of aggregates, asphalt, concrete and recycled materials; quality assurance, quality control.

403 Environmental Geology 3 Same as Geol 403.

405 Geophysics 4 (3-3) Same as Geol 405.

410 Experimental Methods in Geotechnical Engineering 3 (1-6) Prereq C E 317. Experimental methods of evaluating geotechnical engineering properties including shear strength, stress/strain behavior, time-dependent behavior, and permeability. Credit not granted for both C E 410 and 510.

414 Structural Design Laboratory 3 (1-6) Prereq C E 431, 433 or c//. Senior design lab on the integration of previous course work into the execution of design.

415 Environmental Measurements 3 (1-6) Prereq C E 341. Theory and laboratory measurement techniques used in analyzing environmental quality parameters. Credit not granted for both C E 415 and 515.

416 Hydraulic Engineering Laboratory 3 (1-6) Prereq C E 315. Experiments related to fluid flow principles and their application to hydraulic engineering.

418 (446) Hazardous Waste Engineering 3 Prereq C E 341, hydrology course. Hazardous waste properties, chemodynamics, and health effects; introduction to risk assessment; design of treatment and groundwater remediation systems. Cooperative course taught by WSU, open to UI students (CE 435).

425 Soil and Site Improvement 3 Prereq C E 317. Compaction theory and methods; deep densification of soils; advanced consolidation theory, preloading, vertical drains, chemical stabilization, grouting. Credit not granted for both C E 425 and 525. Cooperative course taught by WSU, open to UI students (CE 567).

430 Analysis of Indeterminate Structures 3 Prereq C E 330. Matrix-stiffness method applied to trusses, frames, and grids; elastic-plastic and stability analysis of frames; approximate methods; computer applications. Credit not granted for both C E 430 and 530.

431 Structural Steel Design 3 Prereq C E 330. Design of steel structures by working stress design and plastic design; uses of AISC Building Specification.

433 Reinforced Concrete Design 3 Prereq C E 330. Behavior, analysis, and design of reinforced concrete structures; flexure; shear; bond; serviceability requirements; design of beams, columns, and slabs.

434 Prestressed Concrete Design 3 Prereq C E 433. Behavior, analysis, and design of prestressed and post-tensioned prestressed concrete; flexure, shear, bond, anchorage zone design; prestress losses. Credit not granted for both C E 434 and 534. Cooperative course taught by WSU, open to UI students (CE 442).

435 Foundations 3 Prereq C E 331. Site investigation; bearing capacity, settlement and design of shallow foundations, piles and piers; design of retaining walls. Cooperative course taught by WSU, open to UI students (CE 461).

442 Water and Wastewater Treatment Design 3 Prereq C E 315; major in Engr or Env S. Water and wastewater treatment processes and design.

450 Hydraulic Engineering Design 3 Prereq C E 351. Hydraulic design and planning of facilities associated with gravity controlled and pressurized flow. Cooperative course taught jointly by WSU and UI (CE 422).

451 Open Channel Flow 3 Prereq C E 315. Steady, uniform flow; controls and transitions in fixed-bed channels. Credit not granted for both C E 451 and 551.

460 Advanced Hydrology 3 Prereq C E 351. Components of the hydrologic cycle; conceptual models; watershed characteristics; probability/statistics in data analysis; hydrographs; computer models; and design applications. Credit not granted for both C E 460 and 560.

462 Engineering Law and Contracts 2 Development of law, courts, and ethics; law on contracts, agency, sales, property, and patterns; specifications; preparation of contract documents. Cooperative course taught by UI (CE 484), open to WSU students.

463 Engineering Administration 3 Engineering economy; annual cost, present worth, rate of return, and benefit-cost ratio in engineering decision making; basic contract law. Cooperative course taught by UI (CE 486).

464 Construction Management 3 Job scheduling, job planning, project control, records and policies, and construction equipment.

465 [M] Integrated Civil Engineering Design 3 (1-6) Prereq senior in C E. Civil engineering applications to planning and design; problem synthesis, data analysis, decision making and reporting.

471 Meteorology 3 Prereq Math 273; Phys 202. Basic meteorology; atmospheric thermodynamics; cloud physics, synoptic meteorology; radiative processes; climate change. Credit not granted for both C E 471 and 571.

473 Pavement Design 3 Prereq C E 215, 260, 317; Econ 101 or 102; c// in C E 322. Systems approach to managing pavements; evaluation, design, alternative design selection and characterization of pavement materials. Cooperative course taught jointly by WSU and UI (CE 475).

474 Intermediate Transportation Engineering 3 Prereq C E 322. Fundamentals of geometric design and traffic engineering for urban and rural highways. Cooperative course taught by UI (CE 474), open to WSU students.

475 Groundwater 3 (2-3) Same as Geol 475.

480 [M] Ethics and Professionalism 1 Prereq senior status. Professional aspects of civil engineering and ethics.

495 Engineering Internship V 1-4 May be repeated for credit; cumulative maximum 4 hours. By interview only. Placement in a professional, governmental, or industrial situation for specialized or general experience. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Advanced Topics in Transportation Engineering V 2-4 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 322, statistics course. Analysis, planning, design, and evaluation of transportation modes and systems. Cooperative course taught jointly by WSU and UI (CE 571).

506 Design and Construction of Water Wells 3 Analysis of geologic and engineering factors important in design, construction, and maintenance of water wells. Cooperative course taught by UI (Hydro 575), open to WSU students.

507 Seepage and Earth Dams 3 Principles of earth-dam design, failures, considerations in construction; principles governing flow of water through soils. Cooperative course taught by UI (Geol E 535), open to WSU students.

508 Air Pollution Control Engineering 3 Prereq senior in Engr or Ph S. Measurement and control of air pollution; engineering design calculations; equipment and process. Cooperative course taught jointly by WSU and UI (Ch E 575).

510 Experimental Methods in Geotechnical Engineering 3 (1-6) Graduate-level counterpart of C E 410; additional requirements. Credit not granted for both C E 410 and 510.

511 Advanced Topics in Geotechnical Engineering V 2-4 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 317. Soil dynamics, theoretical soil mechanics, numerical methods in soil mechanics, and geohydraulics, engineering geology, cold regions geoenvironment, advanced laboratory testing. Cooperative course taught jointly by WSU and UI (CE 569).

512 Dynamics of Structures 3 Behavior of structures under impulse, impulsive, and seismic loads. Cooperative course taught jointly by WSU and UI (CE 543).

100
514 Advanced Mechanics of Materials 3 Elastic stress-strain relations, shear center, unsymmetrical bending, curved beams, elastic stability, elastically supported beams, energy methods, thin plates, shells. Cooperative course taught jointly by WSU and UI (CE 510/ME 559).

515 Environmental Measurements 3 (1-6) Graduate-level counterpart of C E 415; additional requirements. Credit not granted for both C E 415 and 515.

516 Unsteady Closed-Conduit Flow 3 Prereq C E 351. Derivation of governing equations; finite difference methods; methods of characteristics; boundary conditions; computational procedures; transients caused by centrifugal pumps.

517 Unsteady Open-Channel Flow 3 Prereq C E 451. Derivation of governing equations; explicit and implicit finite difference methods; computational procedures; stability and convergence.

519 (546) Hazardous Waste Treatment 4 Prereq C E 418. Principles of operation and application of processes in design of technologies used in hazardous waste treatment and remediation.

525 Soil and Site Improvement 3 Graduate-level counterpart of C E 425; additional requirements. Credit not granted for both C E 425 and 525. Cooperative course taught by WSU, open to UI students (CE 567).

527 Advanced Soil Mechanics 3 Prereq C E 317. Effective stresses and lateral earth pressures; interrelationships of applied stresses, permeability, strain and shear strength of soils. Cooperative course taught by UI (CE 561), open to WSU students.

528 Advanced Foundation Engineering 3 Prereq C E 317. Consolidation theories, bearing capacity, and settlements of foundations, pile group behavior, theory of subgrade reaction, materials foundations, laterally loaded piles. Cooperative course taught by UI (CE 562), open to WSU students.

529 Soil Dynamics 3 Prereq graduate standing. Vibration theory; analysis of machine vibrations; wave propagation through soils; dynamic loading of soils; liquefaction. Cooperative course taught by UI (CE 565), open to WSU students.

530 Analysis of Indeterminate Structures 3 Graduate-level counterpart of C E 430; additional requirements. Credit not granted for both C E 430 and 530.

531 Structural Reliability 3 Probabilistic structural analysis and design; probabilistic characterization of material properties and load combinations (dead, live, earthquake, wind); LRFD structural design. Cooperative course taught jointly by WSU and UI (CE 445/545).

532 Finite Elements 3 Theory of finite elements; applications to general engineering systems considered as assemblages of discrete elements. Cooperative course taught jointly by WSU and UI (CE 546).

533 Advanced Reinforced Concrete Design 3 Prereq C E 433. Composite design; slab design; limit state design; footings; retaining walls; deep beams; brackets and corbels; torsion; seismic design; shear walls. Cooperative course taught by WSU, open to UI students (CE 547).

534 Prestressed Concrete Design 3 Graduate-level counterpart of C E 434; additional requirements. Credit not granted for both C E 434 and 534. Cooperative course taught by WSU, open to UI students (CE 442).

536 Nondestructive Testing of Wood-based Materials 3 Principles of nondestructive testing applied to wood-based materials. Cooperative course taught by WSU, open to UI students (ForPr 535).

537 Advanced Topics in Structural Engineering 3 May be repeated for credit; cumulative maximum 6 hours. Elastic stability, plates and shells, other relevant topics. Cooperative course taught by WSU, open to UI students (CE 549).

538 Earthquake Engineering 3 Prereq C E 512. Ground motion characterization, elastic and inelastic structural dynamic response, code procedures, lateral force-resisting systems, detailing for inelastic response.

540 Instrumental Analysis of Environmental Contaminants 3 (1-6) Prereq C E 415. Theory and methods of analysis of water and water suspensions for contaminants using electrometric, spectrophotometric, and chromatographic techniques. Cooperative course taught by WSU, open to UI students (CE 530).

541 Environmental Engineering Unit Operations 3 Prereq C E 442; Math 315. Theory and design of physical and chemical unit operations of water and wastewater treatment systems. Cooperative course taught jointly by WSU and UI (CE 531).

542 Environmental Engineering Unit Processes 3 Prereq C E 541. Biocatalytic energy and kinetics; biological waste treatment processes; nutrient removal; advanced wastewater treatment design. Cooperative course taught jointly by WSU and UI (CE 532).

543 Advanced Topics in Environmental Engineering Practice V 1-4 May be repeated for credit; cumulative maximum 8 hours. Analysis and evaluation of air/water/soil pollution problems, new measurement methods, hazardous waste treatment, global climate change, and water/wastewater treatments.

544 Wastewater Treatment System Design 3 (2-3) Prereq C E 542 or c//. Application of unit operations and processes to design of integrated treatment systems; critical review of designs. Cooperative course taught jointly by WSU and UI (CE 532).

545 Principles of Environmental Engineering 3 Prereq C E 315, 341; Math 315. Principles of chemistry, microbiology, thermodynamics, material and energy balances, and transport phenomena, for environmental engineers.

548 Advanced Topics in Water Quality Engineering Systems V 2-4 May be repeated for credit; cumulative maximum 6 hours. Analysis and evaluation of natural water systems for retention and transport of pollutants and their associated impacts.

550 Intermediate Fluid Mechanics 3 Prereq C E 315. Basic flow equations; Navier-Stokes equations; similitude, potential flow, boundary layers, turbulence, and diffusion; uniform and non-uniform conduit flow; drag and lift. Cooperative course taught by WSU, open to UI students (CE 525).

551 Open Channel Flow 3 Graduate-level counterpart of C E 451; additional requirements. Credit not granted for both C E 451 and 551.

552 Advanced Topics in Hydraulic Engineering V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq C E 315. Cavi- tation, air entrainment, hydraulic machinery, similitude, mixing in rivers and estuaries, hydraulic design. Cooperative course taught by WSU, open to UI students (CE 527).

556 Numerical Modeling in Fluid Mechanics 3 Prereq C E 315. Fundamental concepts in development of numerical models for fluid flow with applications to steady and unsteady flows.

560 Advanced Hydrology 3 Graduate-level counterpart of C E 460; additional requirements. Credit not granted for both C E 460 and 560.

561 Water Resources Systems 3 Concepts in water development; coordination of development of other natural resources; systems approach and optimization techniques. Cooperative course taught by UI (CE 552), open to WSU students.

562 Water Resources Planning 3 Prereq C E 351. Design and feasibility studies in water supply, power, flood problems, navigation, irrigation, recreation. Cooperative course taught by UI (CE 554), open to WSU students.

569 Field Methods in Hydrogeology 2 (1-3) Same as Geol 569.

571 Metrology 3 Graduate-level counterpart of C E 471; additional requirements. Credit not granted for both C E 471 and 571.

572 Advanced Pavement Analysis 3 Fundamentals of pavement-vehicle interaction and the mechanics of pavement response and damage.

573 Air Pollution Abatement and Administration 2 Air quality management, criteria, and standards; administration of air pollution Department of Civil and Environmental Engineering control agencies; enforcement, inspection and surveillance. Cooperative course taught by WSU, open to UI students (CE 559).


577 Advanced Groundwater Hydraulics 3 Prereq Geol 475, Math 315. Modeling of subsurface flow in saturated, unsaturated, and multilayered systems; analytic and numerical solutions techniques; review of statistical geohydrologic methods.

579 Groundwater Geochemistry V 2-4 May be repeated for credit; cumulative maximum 4 hours. Same as Geol 579.

580 Graduate Seminar 1 May be repeated for credit; cumulative maximum 2 hours. Lectures and reports on current developments in research and practice.

581 Environmental Engineering Analysis 2 (1-3) Prereq C E 541. Theoretical and laboratory methods for development of design criteria for environmental systems. Cooperative course taught by WSU, open to UI students (CE 534).

583 Engineering Aspects of Environmental Chemistry V 2-4 Prereq C E 442. Chemical principles as applied to water supply and pollution control engineering. Cooperative course taught by WSU, open to UI students (CE 559).
through the Department of Elementary and Secondary Education. The School also cooperates with the College of Agriculture and Home Economics in support of the agricultural communications option.

Supplementing the classrooms and laboratories of the Murrow School are the professional internship program, campus radio and television facilities, and student publications, including a daily newspaper.

Certification Requirements

To certify a major in communication, a student must have earned at least 45 semester hours and normally no more than 90 hours and meet the following minimum requirements: (1) 2.7 cumulative g.p.a. in WSU communication courses; (2) 2.5 overall cumulative g.p.a.; (3) C grade or better in Com 101, 245, 270, 295; SpCom 102. Students transferring into the department with 55 or more hours are urged to complete communication certification requirements within two semesters.

Satisfactory completion of a writing skills test is required for enrollment into Com 295.

Degree Program Requirements

All degree programs require a minimum of 39 semester hours in communication. Students have three options to meet the enrichment/internship requirements: 6 hours of internship credit; 3 hours of internship credit and 3 of communication literacy or development courses; or 3 hours of communication literacy and 3 of development courses.

FIRST YEAR REQUIREMENTS

The first year requirements are common to all communication degrees programs:

Freshman Year

First Semester

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Com 101 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3

Second Semester

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Com 270 3
GenEd 111 [A] (GER) 3
SpCom 102 [C] (GER) 3
Tier I Science [Q] (GER)3 3

ADVERTISING DEGREE PROGRAM (120 HOURS)

Sophomore Year

First Semester

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Com 245 3
Com 295 3
Math Proficiency [N] (GER) 3
Minor Elective2 3

Second Semester

Arts & Humanities [H,G] (GER) 3
Intercultural [I,G,K] (GER) 3
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3

Junior Year

First Semester

Adver 381 [M] 3
Foreign Language, if necessary, or Electives5 6
Minor Elective2 3
Mktg 360 3
Science Elective1 1
Complete Writing Portfolio

Second Semester

300-400-level Minor Electives2 6
Adv 382 3
Biological Sciences [B] (GER) 4
Com Development Elective3 3

Senior Year

First Semester

300-400-level Minor Elective2 3
Com Literacy Elective1 3
Com Literacy Elective (For Enrichment)3 3
Minor Elective2 3
Seminar [M]6 3

Second Semester

Adver 480 3
Com Development Elective (For Enrichment)4
Foreign Language, if necessary, or Electives6 6
Tier III Capstone (GER) 3

1 Students may substitute one four-credit Tier I Science for both the three-credit Tier I Science and one-credit Science Elective
2 Students may substitute one four-credit Tier I Science for both the three-credit Tier I Science and one-credit Science Elective
3 3 credits in another department, 9 of which are 300-400-level.
4 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
6 Communication Literacy Electives: Com 410, 440, 450, 460, SpCom 324, 385, 401, Jour 425.
7 Any seminar numbered 475 in communication.

BROADCAST MANAGEMENT DEGREE PROGRAM (120 HOURS)

Sophomore Year

First Semester

Acctg 230 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Com 245 3
Com 295 3
Math Proficiency [N] (GER) 3
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<tr>
<td><strong>Junior Year</strong></td>
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<td><strong>First Semester</strong></td>
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<tr>
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<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<td><strong>Senior Year</strong></td>
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<td><strong>First Semester</strong></td>
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<tr>
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<tr>
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<td><strong>Second Semester</strong></td>
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<tr>
<td>Second 300-400-level Minor Elective</td>
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<td>Foreign Language, if necessary, or Elective</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Com Development Elective</td>
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<tr>
<td>Jour 330</td>
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**Second Semester** |       |                                                  |
| Second 300-400-level Minor Elective | 3 |                                                  |
| Biological Sciences [B] (GER) | 4 |                                                  |
| Com Development Elective | 3 |                                                  |
| Jour 330 | 3 |                                                  |

**Junior Year** |       |                                                  |
| **First Semester** |       |                                                  |
| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 |                                                  |
| Com 245 | 3 |                                                  |
| Com 295 | 3 |                                                  |
| Math Proficiency [N] (GER) | 3 |                                                  |
| Minor Elective | 1 |                                                  |
| **Second Semester** |       |                                                  |
| Arts & Humanities [H,G] (GER) | 3 |                                                  |
| Foreign Language, if necessary, or Elective | 3 |                                                  |
| Intercultural [I,G,K] (GER) | 3 |                                                  |
| Physical Sciences [P] (GER) | 4 |                                                  |
| Social Sciences [S,K] (GER) | 3 |                                                  |
| **Junior Year** |       |                                                  |
| **First Semester** |       |                                                  |
| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 |                                                  |
| Com 245 | 3 |                                                  |
| Com 295 | 3 |                                                  |
| Math Proficiency [N] (GER) | 3 |                                                  |
| Minor Elective | 1 |                                                  |
| **Second Semester** |       |                                                  |
| Arts & Humanities [H,G] (GER) | 3 |                                                  |
| Foreign Language, if necessary, or Elective | 3 |                                                  |
| Intercultural [I,G,K] (GER) | 3 |                                                  |
| Physical Sciences [P] (GER) | 4 |                                                  |
| Social Sciences [S,K] (GER) | 3 |                                                  |
| **Junior Year** |       |                                                  |
| **First Semester** |       |                                                  |
| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 |                                                  |
| Com 245 | 3 |                                                  |
| Com 295 | 3 |                                                  |
| Math Proficiency [N] (GER) | 3 |                                                  |
| Minor Elective | 1 |                                                  |
| **Second Semester** |       |                                                  |
| Arts & Humanities [H,G] (GER) | 3 |                                                  |
| Foreign Language, if necessary, or Elective | 3 |                                                  |
| Intercultural [I,G,K] (GER) | 3 |                                                  |
| Physical Sciences [P] (GER) | 4 |                                                  |
| Social Sciences [S,K] (GER) | 3 |                                                  |
| **Junior Year** |       |                                                  |
| **First Semester** |       |                                                  |
| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 |                                                  |
| Com 245 | 3 |                                                  |
| Com 295 | 3 |                                                  |
| Math Proficiency [N] (GER) | 3 |                                                  |
| Minor Elective | 1 |                                                  |

**Public Relations Degree Program (120 Hours)**

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<thead>
<tr>
<th></th>
<th>Hours</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Sophomore Year</strong></td>
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<tr>
<td><strong>First Semester</strong></td>
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<td></td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Com 245</td>
<td>3</td>
<td></td>
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<tr>
<td>Com 295</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td><strong>Second Semester</strong></td>
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<tr>
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**Edward R. Murrow School of Communication**
Edward R. Murrow School of Communication

Com Literacy (for enrichment) 3
Com Literacy Elective1 3
Seminar6 3

Second Semester Hours
Com Development (for enrichment) 3
Foreign Language, if necessary, or Elective1 6
P R 412 3
Tier III Capstone (GER) 3

1 Students may substitute one four-credit Tier I Science for both the three-credit Tier I Science and one-credit Science Elective.
2 18 credits in another department, 9 of which are 300-400-level.
3 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
5 Communication Literacy Electives: Com 410, 440, 450, 460, SpCom 324, 385, 401, Jour 425.
6 Any seminar numbered 475 in communication.

SPEECH COMMUNICATION DEGREE PROGRAM (120 HOURS)

Sophomore Year

First Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Com 245 3
Com 295 3
Math Proficiency [N] (GER) 3
SpCom 185 or 235 3

Second Semester Hours
Arts & Humanities [H,G] (GER) 3
Intercultural [I,L,K] (GER) 3
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3
SpCom 251, 302, or 351 3

Junior Year

First Semester Hours
Foreign Language, if necessary, or Elective1 6
Minor Electives2 6
Science Elective1 1
SpCom 324 or 401 3
Complete Writing Portfolio

Second Semester Hours
300-400-level Minor Electives2 6
300-400-level SpCom Elective 3
Biological Sciences [B] (GER) 4
Com Development Elective6 3

Senior Year

First Semester
300-400-level Minor Elective2 3
Com Literacy Elective1 3
Com Literacy (for enrichment) 3
Minor Elective2 3
Elective 3

Second Semester Hours
Com Development (for enrichment) 3
Foreign Language, if necessary, or Elective1 6
Seminar [M]6 3
Tier III Capstone (GER) 3

1 Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and 1-credit Science Elective.
2 18 credits in another department, 9 of which are 300-400-level.
3 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
5 Communication Literacy Electives: Com 410, 440, 450, 460, SpCom 324, 385, 401, Jour 425.
6 Any seminar numbered 475 in communication.

AGRICULTURAL COMMUNICATIONS

This is a major in the Department of Biological Systems Engineering in cooperation with the School of Communication. The student declaring this major must complete the requirements of the general agricultural curriculum and accumulate a minimum of 30 hours in the School of Communication, including any communication courses used to satisfy general agricultural requirements. Those electing this major should make that decision known as early as possible in their academic careers. Agricultural communications majors should complete the following: Broadcast Media: Bdcst 350, 355, 365; Com 295, 409; P R 312, 313, 412; and 9 elective hours in the School of Communication. The student should consult with a School of Communication advisor before registering for elective courses. Specialized programs patterned for the individual career aspirations may be developed in conjunction with the head of the School of Communication or a designated representative.

Enrollment in all 300- and 400-level courses, except GER courses, is limited to certified communication majors or certified majors whose degree programs require these courses.

Intersequence Courses

Com 101 [S] Mass Communications and Society 3
245 Language and Human Behavior 3 Prereq sophomore standing. Theories of language as it influences human behavior in meaning production, problem solving and construction of social reality.
253 Photocommunications 3 (2-3)
270 Introduction to Mass Communication Theory 3 Prereq sophomore standing. Theories of mass communication and how it influences behavior.
295 Media Writing 3 (2-3) Prereq Com 101, 245, 270; satisfactory completion of communication writing skills test; typing proficiency. Writing for the media; journalistic and persuasive writing. (The typing proficiency may be waived on an individual basis for otherwise qualified disabled students.)
315 Topics in Canadian Studies 1 Same as Hist 315.
321 [I] Intercultural Communication 3 Culture and communication.
340 Ethics in Mass Media 3 Application of basic concepts of ethics to media performance in news, advertising and entertainment.
403 Media and the Canadian Experience 3 History, structure, function of Canadian media; multiculturalism, media imperialism, news production, management censorship, freedom of information. Cooperative course taught by UI (Comm 440), open to WSU students.
409 Quantitative Research 3 Measurement, questionnaire construction, sampling, data collection techniques, analysis and hypothesis testing in communication research.
410 History of Mass Communications 3 For seniors and graduate students. Credit not granted for both Com 410 and 510.
415 Law of Mass Communications 3 Prereq senior standing. Credit not granted for both Com 415 and 515.
420 New Communication Technologies 3 Prereq senior standing. New communication technologies, their impact on communication processes, access, regulation, and communication in organization/professional contexts. Credit not granted for both Com 420 and 520.
440 Media Ethics 3 Prereq senior standing. Foundations and frameworks of media ethics; case studies in assessing media performance. Credit not granted for both Com 440 and 540.
450 Mass Media and the First Amendment 3 Prereq senior standing. Theoretical and philosophical bases of press, individual and government interaction centering on First Amendment. Credit not granted for both Com 450 and 550.
453 Color Photography 3 (2-3) Prereq Com 253.
460 Mass Media Criticism 3 Prereq senior standing. Theoretical and philosophical basis for critical analysis of mass communication. Credit not granted for both Com 460 and 560.
470 Mass Communications Theories and Theory Construction 3 Prereq senior standing. Theories of mass communication and the process of theory construction.
481 Media Management 3 For seniors and graduate students.
495 Communication Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. By interview only. S, F grading.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
501 Theory Building in Communications 3 Relationship of research to theory development; evaluation of current theory and research; planning and executing research within specified theoretical frameworks.
504 Instructional Practicum 1 May be repeated for credit; cumulative maximum 4 hours. S, F grading.
Edward R. Murrow School of Communication

509 Quantitative Research 3 Introduction to quantitative research in communication; hypothesis development, testing; basic statistics, interpretation; field surveys, laboratory and field experiments, content analysis.

510 History of Mass Communications 3 Graduate-level counterpart of Com 410; additional requirements. Credit not granted for both Com 410 and 510.

515 Law of Mass Communications 3 Graduate-level counterpart of Com 415; additional requirements. Credit not granted for both Com 415 and 515 requirements.

520 New Communication Technologies 3 Graduate-level counterpart of Com 420; additional requirements. Credit not granted for both Com 420 and 520.

524 Criticism of Public Address 3 Graduate-level counterpart of SpCom 424; additional requirements. Credit not granted for both SpCom 424 and Com 524.

525 Rhetorical Theory 3 Major theories from classical to contemporary; analysis of symbolic action in public, political discourse.

530 New Communication Technologies 3 Graduate-level counterpart of Com 420; additional requirements. Credit not granted for both Com 420 and 530.

538 (535) Seminar in Training and Development 3 May be repeated for credit; cumulative maximum 6 hours. Instructional aspects of training and consultation in organizational communication; team-building, presentional skills, conflict resolution, assessment, leadership, group dynamics.

540 Media Ethics 3 Graduate-level counterpart of Com 440; additional requirements. Credit not granted for both Com 440 and 540.

550 Mass Media and the First Amendment 3 Graduate-level counterpart of Com 450; additional requirements. Credit not granted for both Com 450 and 550.

560 Mass Media Criticism 3 Graduate-level counterpart of Com 460; additional requirements. Credit not granted for both Com 460 and 560.

570 Communication Theory 3 Relevant theories and research from mass and interpersonal communication.

580 Topics in Communication 3 May be repeated for credit; cumulative maximum 12 hours. Contemporary, specialized, or technical topics in communication.

585 Interpersonal and Small Group Communication 3 Theory and research in interpersonal and small group communication.

591 Qualitative Research Methods 3 Historical, textual, and legal methodologies for theory-based, evaluative and discourse studies in communication.

599 Seminar in Communication 3 May be repeated for credit; cumulative maximum 6 hours. Special topics in rhetoric, communication, and public address.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Advertising

Adver 380 Advertising Principles and Practices 3 Advertising history, theory and practice by advertising agencies and organizations.


382 Media Planning 3 Prereq Adver 380. Media planning theories, strategies, and practices.

475 Seminar in Advertising 3 May be repeated for credit; cumulative maximum 9 hours. Prereq Com 409; for seniors and graduate students.

480 Advertising Agency Operation and Campaigns 3 Prereq Adver 381, 382, Mkgt 360. Principles and functions of advertising management: campaign planning, execution, pre-sentation and evaluation. Credit not granted for both Adver 480 and 580.

483 Advertising Research 3 Prereq Adver 380, 381, 382, Com 409, Mkgt 360. Professional research practices in advertising.

495 Advertising Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. By interview only. S, F grading.

499 Special Problems V 1-4 May be repeated for credit; cumulative maximum 9 hours. By interview only. For seniors and graduate students.

511 Broadcast Management 3 Prereq senior standing. Credit not granted for both Bdcst 481 and 581.

495 Broadcasting Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq Bdcst 365, 455, or 465. By interview only. S, F grading.

514 Special Problems V 1-4 May be repeated for credit; cumulative maximum 9 hours. Prereq Bdcst 465 and 565.

565 Broadcast News Writing, Reporting, and Editing 3 (2-3) Graduate-level counterpart of Bdcst 465; additional requirements. Credit not granted for both Bdcst 465 and 565.

581 Broadcast Management 3 Graduate-level counterpart of Bdcst 481; additional requirements. Credit not granted for both Bdcst 481 and 581.

Jour

305 [M] Reporting 3 Prereq Com 295.

306 News Gathering and Dissemination 3 Prereq Com 295; certified Com major. Research and reporting of news and features, for public relations specialists.

330 News Editing 3 (2-3) Prereq Jour 305 or by interview. Basic copy editing and design skills for print media.

417 [M] Specialized Writing 3 Prereq Jour 305. Reporting techniques and issues related to specialized media fields.


431 Advanced Editing 3 (2-3) Prereq Adver 381, Jour 330, or P R 313. Advanced copy editing and design techniques; emphasis on visual communication.

475 Seminar in Journalism 3 May be repeated for credit; cumulative maximum 9 hours. For seniors and graduate students.

481 Newspaper Management 3 Senior standing. Credit not granted for both Jour 481 and 581.

495 Journalism Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. By interview only. Prereq Jour 330, 425, S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.
525 Reporting of Public Affairs 3 Graduate-level counterpart of Jour 425; additional requirements. Credit not granted for both Jour 425 and 525.

581 Newspaper Management 3 Graduate-level counterpart of Jour 481; additional requirements. Credit not granted for both Jour 481 and 581.

Public Relations
P R
312 Principles of Public Relations 3 Prereq Com 295. Principles, theories, methods and objectives of public relations; public relations problems and practices.

313 [M] Public Relations Techniques and Media Usage 3 (2-3) Prereq Com 295, Jour 305; P R 312. Practical applications of public relations theory and techniques with emphasis on writing and media use.

412 Public Relations Management and Campaign Design 3 Prereq Com 409, P R 312, Jour 306 or P R 313. Application of public relations principles, management, persuasion theory and research methods to public relations issues. Credit not granted for both P R 412 and 512.

475 Seminar in Public Relations 3 May be repeated for credit; cumulative maximum 9 hours. By interview only. For seniors and graduate students.

495 Public Relations Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq Jour 305, P R 313; by interview only. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

512 Public Relations Management and Campaign Design 3 Graduate-level counterpart of P R 412; additional requirements. Credit not granted for both P R 412 and 512.

Speech Communication
SpCom

185 Principles of Interpersonal Communication 3 Theory and practice of interpersonal communication; understanding and applying intrapersonal information in interpersonal settings.

235 [C] Principles of Group Communication 3 Theoretical and practical aspects of communication in groups; classroom exercises and films demonstrate principles and develop skills.

251 Oral Interpretation of Literature 3 Analyzing and oral reading of prose, poetry, and drama; sharing literature with an audience.

302 [C] Advanced Public Speaking 3 Advanced principles of public speaking and their practical implementation for effective communication.

324 [C] [M] Argumentation Theory, analysis and application of written and oral arguments in everyday use.

334 Deliberative Decision-Making 3 Debate; researching the topic, case construction, analysis, and practice debating.

335 Organizational Communication 3 Prereq SpCom 235 or P R 312. Communication theory and organizational functions; communication influences on organizational behavior, managerial effectiveness, corporate culture, organizational power and politics.

351 Advanced Interpretation 3 Voice and dictation, interpretation of copy for broadcast.

385 Advanced Principles of Interpersonal Communication 3 Prereq SpCom 185. Theoretical literature relevant to analyzing relationships; students use this information to analyze a relationship.

401 Persuasion 3 Theories of persuasion and social action; study of strategies and techniques for the persuasive use of language and other symbols.

424 [M] Criticism of Public Address 3 Critical analysis of public messages; applications of traditional contemporary approaches to textual analysis, from classical to postmodern theory. Credit not granted for both SpCom 424 and Com 524.

435 Advanced Organizational Communication 3 Prereq SpCom 335. Advanced concepts, models, and methods for in-depth analysis of contemporary communication organizations.

451 Readers Theatre for the Classroom 3 Principles of literature selection, scriptwriting and staging of readers theatre for classroom. Credit not granted for both SpCom 451 and 551.

475 Seminar in Speech Communication 3 By interview only. May be repeated for credit; cumulative maximum 9 hours. For seniors and graduate students.

485 Applied Interpersonal Communication 3 Prereq SpCom 185 or 385. How a person relates to others; cognitive and affective parts of the process.

488 Structure of Conversation 3 Symbol systems and their interrelation in sequential organization in everyday communication.

495 Speech Communication Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. By interview only. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

551 Readers Theatre for the Classroom 3 Graduate-level counterpart of SpCom 451. Credit not granted for both SpCom 451 and 551.

**Department of Comparative American Cultures**

**Department Chair and Professor, P. Wong:** Professors, J. Peterson, W. Willard; Associate Professor, A. Kuo; Assistant Professors, C. Beckles, Y. Flores Niemann, S. Fowler, M. Montes de Oca Ricks, R. Ong, M. Pizarro, A. Saine; Associate Professor Emeritus, T. Anderson.

The Department of Comparative American Cultures has a distinct function within the larger structure of Washington State University. It has the responsibility for providing the undergraduate student population with the critical understanding that ours is a complex multicultural society, made up of many racial and ethnic communities. The overall educational experience provides students with the opportunity to find significance and meaning in living within a complex multicultural and multi-cultural nation.

Comparative American Cultures offers an undergraduate major and minor which includes a stimulating sequence of core courses that introduce students to sophisticated critical analyses of race, ethnicity, and culture. The department also provides instruction through a comprehensive curriculum within four areas of emphasis: 1) African American Studies; 2) Asian/Pacific American Studies; 3) Chicana/o Studies; and 4) Native American Studies. Students can choose a particular area of emphasis or double-major in tandem with another discipline, such as American studies, anthropology, business, communication, education, English, environmental science, history, political science, psychology, sociology, teaching and learning, women’s studies, and many others.

CAC faculty bring to their instruction and research multidisciplinary expertise in the areas of literature, cultural studies, education, political science, psychology, history, sociology, and anthropology. Faculty teach courses and conduct research that reflects this multidisciplinary nature, thereby enriching the intellectual climate for students across the university. Many CAC faculty also hold joint appointments with departments of their specialty and most are members of the graduate faculty.

In addition to its strong academic curriculum, the Department of Comparative American Cultures is committed to developing relationships with organizations in the Pacific Northwest whose work strengthen multicultural and multiracial relationships locally, regionally, nationally, and globally. Students involved in a major program of study within the department are encouraged to seek out internships which provide them the opportunity to incorporate community service with their academic work.

The Department of Comparative American Cultures currently houses the Northwest Center for Comparative American Cultures and Race Relations. Funded by a grant from the Rockefeller Foundation, the center houses resident scholars who conduct research in the areas of race, ethnicity, and culture and who present their findings with department faculty and students in a series of formal lectures known as the Rockefeller Lecture Series and in small group meetings. The center also invites nationally known scholars from a variety of disciplines to participate in the Rockefeller Lecture Series.

**Degree Program Requirements**

Students majoring in comparative American cultures are expected to fulfill all of the university’s requirements for graduation, as well as 39 hours of CAC courses, distributed into 15 hours in the CAC core sequence (CAC 101, 201, 203, 301, 401), 15 hours in one ethnic area of concentration, and 9 hours outside that area. At least half of the 39 hours must be above the 200 level.

Students minoring in comparative American cultures are expected to fulfill all of the university’s requirements for graduation, as well as 18 hours of CAC courses, with 9 hours in the CAC core sequence, and 9 hours outside that sequence. At least half of the 18 hours must be above the 200 level.
### Comparative American Cultures Degree Program (120 Hours)  

**Freshman Year**

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**Sophomore Year**

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**Junior Year**

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**Senior Year**

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<td>Tier III Capstone (GER)</td>
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### Description of Courses

#### Comparative American Cultures

**CAC 101 [I] Introduction to Comparative American Cultures**  
Comparative issues in Asian American, African American, Chicana/o, and Native American cultures in the United States.

**111 [I] Introduction to Asian/Pacific American Studies**  
Introduction to major historical, social, political, and cultural experiences which are currently the concern of many Asian American communities.

**131 [I] Introduction to Black Studies**  
Historical, cultural, sociological, and political experiences of Black people in America and Africa.

**151 [G] Introduction to Chicano Studies**  
Chicano culture and peoples (Americans of Mexican descent); historical backgrounds and contemporary conditions.

**171 [G] Introduction to Native American Studies**  
Introduction to Native American studies; introductory course to contemporary native America.

**201 Cultural Politics of Race, Ethnicity, and Identity**  
Historical, political, social, and global formations of racial and ethnic identities in the US.

**211 [K] Introduction to Asian/Pacific American History**  
Historical experience of Asian/Pacific Americans since the 19th century.

**212 [K] Peoples of the World**  
Same as Anth 203.

**217 [K] Introduction to East Asian Culture**  
Same as Hist 275.

**227 [I] Introduction to African Studies**  
African continent; history, politics, art, and their effects today.

**235 [I] African American History**  
History of African Americans from colonial times to the present.

**255 Chicano Ethnology**  
The development of La Raza from 1521 to 1910; major historical and cultural aspects of the La Raza peoples.
405 [I] Cultural Criticism and Theory 3 Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence. Major critiques and theories of colonialist and imperialist formations of culture.

415 United States 1941 to Present 3 Same as Hist 419.

416 Modern Japanese History 3 Same as Hist 477.

419 Social History of the Pacific Northwest 3 Same as Hist 422.

439 [K] [M] African Politics 3 Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence. Historical, economic, and social factors that shape contemporary African political systems and problems of nation-building.

456 Bilingual Methods and Materials Across Content Areas 3 Same as T & L 411.

459 Latin American Governments 3 Same as Pol S 413.

475 Indians of the Northwest 3 History of Native Americans of the Coast and Plateau; historic relationship with Europeans and Anglo-Americans.

480 [S] Federal Native American Resource Settlement Models 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. Issues involving indigenous ownership of natural resources within the US.

490 Leadership in an American Context: Issues of Race and Gender 3 Prereq junior standing. Contextualization of leadership on the national, local, and grassroots levels in the United States through examining issues of race and gender.

495 Special Topics in Comparative American Cultures 3 May be repeated for credit; cumulative maximum 6 hours. Prereq course in CAC. Cross-cultural studies on Asian/Pacific Americans, Blacks, Chicano, and Native Americans.

499 Special Problems V 1-4 May be repeated for credit. F, G grading.

Program in Criminal Justice

Associate Professor and Program Director, G. Russell; Professors, N. Lovrich, O. Marenin, C. Sheldon; Associate Professors, C. Clayton, L. Simon, Q. Thurman; Assistant Professors, R. Jackson, F. Lutze, M. Newman, S. Stehr, E. Weber; Instructor, M. Eip.

The Program in Criminal Justice, located in the Department of Political Science, offers substantive studies in criminal justice in conjunction with a liberal arts education. It prepares students for a broad range of careers (law enforcement, correction, juvenile justice, private security, non-profit) or the pursuit of graduate study, develops leadership qualities, and promotes the ideal of professional achievement in public service.

The program focuses on the multi-disciplinary study of crime and its control, including the components, processes, and programs of the criminal justice system. The curriculum emphasizes the analysis and theories of crime and deviance, criminal law, law and social control, and research on and evaluation of criminal justice systems, administration, and management.

The student is required to complete collateral courses on the larger social, economic, and political environments in which crime and the criminal justice system operate. Taught by a multi-disciplinary faculty, these courses cover such areas as public administration, policy analysis, and research methods. Additional courses are taught by the Department of Sociology.

The courses of study lead to the degrees of Bachelor of Arts in Criminal Justice and Master of Arts in Criminal Justice.

Degree Program Requirements

Students who major in criminal justice must complete the 12 credit criminal justice core (Crm J 101, 150, 320, 330) plus an additional 12 credits of electives (with 9 of the 12 in Crm J courses); of these 24 hours no more than 3 can be taken in Crm J 490. In addition, the student must complete several collateral courses as outlined below. At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses.

All criminal justice majors are required to complete a statistics course.

CRIMINAL JUSTICE DEGREE PROGRAM

(FYDA)

Freshman Year

First Semester

Arts & Humanities [H,G] (GER) 3
Crm J 101 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Social Sciences [S,K] (GER) 3

Second Semester

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Communication [C,W] (GER) 3
Crm J 150 3
GenEd 111 [A] (GER) 3
Science Elective1 1
Tier I Science [Q] (GER)2 3

Sophomore Year

First Semester

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological [B] Sciences (GER) 4
Crm J 320 3
Intercultural [I,G,K] (GER) 3
Math Proficiency [N] (GER) 3

Second Semester

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Physical [P] Sciences (GER) 4
Psych 311, Soc 321, or Approved Statistics Course 3 or 4
Two from: Pol S 300, 402, 404, 443 or Soc 364 6

Junior Year

First Semester

Crm J 330 3
Crm J Electives2 12
Complete Writing Portfolio

Second Semester

One from: Pol S 316, 416, or Soc 424 3
Pol S 340 3
Soc 320 3

Senior Year

First Semester

Hours

Foreign Language, if necessary, or Electives 4
Electives 12

Second Semester

Hours

Foreign Language, if necessary, or Electives 4
Tier III Capstone (GER) 3
Electives 6

Minor in Criminal Justice

The minor in criminal justice requires 18 credits of course work in criminal justice, including Crm J 101, 320, 330. Half of the courses must be taken at the 300-400-level. Students wishing to declare a minor in criminal justice should contact the Criminal Justice Program for details.

Transfer Students

Students planning to transfer to Washington State University at the end of the freshman or sophomore year should follow as closely as possible the general and core course requirements set forth above. If this is done, there should be no difficulty in completing the requirements for the bachelor’s degree within the normal period of four years. It should also be noted that courses numbered 300 or above at Washington State University and taken at other institutions during the freshman or sophomore years will not be accepted for major requirements.

Preparation for Graduate Study

Undergraduates who are pursuing their studies at other institutions or through other curricula at this institution and who contemplate graduate work in this program will do well to elect courses similar to those required in the above schedule of studies.

Description of Courses

Criminal Justice

Crm J

101 Introduction to the Administration of Criminal Justice 3 Agencies and processes in the administration of criminal justice. Cooperative course taught by WSU, open to UI students (CJ 101).

150 Organizational Environment of Criminal Justice 3 Prereq Crm J 101. Impact of organizational structures and dynamics on processes of decision making and the performance of criminal justice agencies. Cooperative course taught jointly by WSU and UI (CJ 150).

320 Criminal Law 3 Substantive criminal law; principles, functions, and limits; basic crime categories, state and national legal research materials. Cooperative course taught jointly by WSU and UI (CJ 325).
consulting firms and commercial concerns dealing with farm products. In addition, government agencies including Agricultural Research and Extension, Agricultural Research Service, Departments of Agriculture, Natural Resources and Ecology, and the Natural Resource Conservation Service have need of soil science graduates. Opportunities also exist in international development.

**Crop Science Degree Program**

**Requirements**

At least 40 credit hours must be in 300-400-level courses. Core and option requirements cannot be taken pass, fail. Students must consult advisors. All crop science majors must select one of the study options listed below in addition to completing the core courses above.

Crop science elective courses include: CropS 301, 302, 303, 360, 410, 469 and 499. A maximum of 3 credits of 499 can be used to satisfy a crop science elective. UH 450 may substitute for CropS 499.

Emphasis is on basic principles of plant science technology, business, industry, science, and end-product marketing. Various options offer specialized, professional, applied, and scientific training for a variety of career opportunities as well as thorough preparation for graduate school.

**FIRST YEAR REQUIREMENTS**

The first year requirements are common to all crop science degree programs:

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio S 103 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>CropS 101</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 107</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio S 104 [B] or Bot 120 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 102 [P] or 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>H D 205 [C] or SpCom 102 [C] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag Ec 210</td>
<td>3</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Bot 230</td>
<td>3</td>
</tr>
</tbody>
</table>

**CROP PROTECTION DEGREE PROGRAM**

**(124 HOURS)** ✔FYDA

For students who wish to emphasize pest control and environmental quality in cropping systems.

**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio S 103 [S] or Econ [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Chem 240</td>
<td>4</td>
</tr>
<tr>
<td>CropS 201</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 201 [B] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag Ec 210</td>
<td>3</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Bot 230</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [L,G,K] (GER)</td>
<td>3</td>
</tr>
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</table>

**Senior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entom 340 or 343</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 301</td>
<td>3</td>
</tr>
<tr>
<td>Two from: CropS 302, 303, 360, or 410 Complete Writing Portfolio</td>
<td>6</td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AgTM 315</td>
<td>3</td>
</tr>
<tr>
<td>Bio S 372 or SoilS 431</td>
<td>3 or 4</td>
</tr>
<tr>
<td>CropS 411 [M]</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 441</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**TURF MANAGEMENT DEGREE PROGRAM**

**(124 HOURS)** ✔FYDA

For students who wish to specialize in golf course supervision, grounds maintenance, and similar recreation positions involving turfgrass management techniques and personnel relations.

**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>One from: AgTM 315, CropS 410, Hort 232, or 331</td>
<td>3</td>
</tr>
<tr>
<td>Entom 340 or 343</td>
<td>3</td>
</tr>
<tr>
<td>Hort 231 or L A 264</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 301</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag Ec 210</td>
<td>3</td>
</tr>
<tr>
<td>CropS 301</td>
<td>3</td>
</tr>
<tr>
<td>CropS 411 [M]</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [L,G,K] (GER)</td>
<td>3</td>
</tr>
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</table>

**Junior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entom 340 or 343</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 301</td>
<td>3</td>
</tr>
<tr>
<td>Two from: CropS 302, 303, 360, or 410 Complete Writing Portfolio</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AgTM 315</td>
<td>3</td>
</tr>
<tr>
<td>Bio S 372 or SoilS 431</td>
<td>3 or 4</td>
</tr>
<tr>
<td>CropS 411 [M]</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 441</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**Senior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AgTM 210 or 312</td>
<td>2</td>
</tr>
<tr>
<td>Crop S 305</td>
<td>3</td>
</tr>
<tr>
<td>Entom 462, 480, or IPM 462</td>
<td>3</td>
</tr>
<tr>
<td>Pl P 429</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acctg or Mgt Elective</td>
<td>3</td>
</tr>
<tr>
<td>AgTM 346</td>
<td>2</td>
</tr>
<tr>
<td>CropS 412</td>
<td>1</td>
</tr>
<tr>
<td>CropS 445 [M]</td>
<td>3</td>
</tr>
<tr>
<td>CropS 498 or 499</td>
<td>1</td>
</tr>
<tr>
<td>Micro 301</td>
<td>4</td>
</tr>
<tr>
<td>SoilS 442</td>
<td>2</td>
</tr>
<tr>
<td>Stat 212 or 412</td>
<td>3 or 4</td>
</tr>
</tbody>
</table>

**FIRST YEAR REQUIREMENTS**

The first year requirements are common to all crop science degree programs:

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio S 103 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>CropS 101</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 107</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio S 104 [B] or Bot 120 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 102 [P] or 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>H D 205 [C] or SpCom 102 [C] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [L,G,K] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Junior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>CropS 411 [M]</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 442</td>
<td>2</td>
</tr>
<tr>
<td>Stat 212 or 412</td>
<td>3 or 4</td>
</tr>
</tbody>
</table>

**TURF MANAGEMENT DEGREE PROGRAM**

**(124 HOURS)** ✔FYDA

For students who wish to specialize in golf course supervision, grounds maintenance, and similar recreation positions involving turfgrass management techniques and personnel relations.

**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>One from: AgTM 315, CropS 410, Hort 232, or 331</td>
<td>3</td>
</tr>
<tr>
<td>Entom 340 or 343</td>
<td>3</td>
</tr>
<tr>
<td>Hort 231 or L A 264</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 301</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag Ec 210</td>
<td>3</td>
</tr>
<tr>
<td>CropS 301</td>
<td>3</td>
</tr>
<tr>
<td>CropS 411 [M]</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [L,G,K] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>
SOILS DEGREE PROGRAM (126 HOURS)

For students who wish to specialize in soil resource management, plant/soil relationships, and landscape conservation.

**Sophomore Year**

**First Semester**
- Ag Ec 201 [S] or Econ [S] (GER) 3
- Chem 240 4
- CropS 201 3
- GenEd 110 [A] or 111 [A] (GER) 3
- SoilS 201 [B] (GER) 3

**Second Semester**
- Ag Ec 210 3
- Arts & Humanities [H,G] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Phys 102 [P] (GER) 4

**Junior Year**

**First Semester**
- Bot 320 4
- Chem 220 2
- CropS 305 3
- Entom 340 or 343 4
- GenEd 110 [A] or 111 [A] (GER) 3

**Second Semester**
- CropS 412 1
- CropS 445 [M] 3
- Soil Science Tier III Capstone (GER) 3
- Complete Writing Portfolio

**Senior Year**

**First Semester**
- CropS Elective 3
- SoilS Elective 3
- SoilS 421 or 441
- Elective

**Second Semester**
- BC/BP 364, 366 4
- CropS 412 1
- CropS 445 [M] 3
- CropS 498 or 499 1
- Tier III Capstone (GER) 3

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SECOND SOIL SCIENCE DEGREE PROGRAM (122 HOURS)

For students who wish to specialize in soil resource management, plant/soil relationships, and landscape conservation.

**Sophomore Year**

**First Semester**
- Ag Ec 201 [S] or Econ [S] (GER) 3
- Chem 240 4
- CropS 201 3
- Phys 101 4
- SoilS 201 [B] (GER) 3

**Second Semester**
- Ag Ec 210 3
- Arts & Humanities [H,G] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Phys 102 [P] (GER) 4

**Junior Year**

**First Semester**
- Bot 320 4
- Chem 220 2
- CropS 305 3
- Entom 340 or 343 4
- GenEd 110 [A] or 111 [A] (GER) 3

**Second Semester**
- CropS 412 1
- CropS 445 [M] 3
- Soil Science Tier III Capstone (GER) 3
- Complete Writing Portfolio

**Senior Year**

**First Semester**
- CropS Elective 3
- SoilS Elective 3
- SoilS 421 or 441
- Elective

**Second Semester**
- BC/BP 364, 366 4
- CropS 412 1
- CropS 445 [M] 3
- CropS 498 or 499 1
- Tier III Capstone (GER) 3

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SCIENCE BIOTECHNOLOGY DEGREE PROGRAM (126 HOURS)

This program prepares students for advanced studies as scientists in such areas as crop physiology, plant breeding, biotechnology and environmental quality. Students may qualify for research or teaching careers with universities, colleges, governmental agencies, or industry.

**Sophomore Year**

**First Semester**
- Ag Ec 201 [S] or Econ [S] (GER) 3
- Chem 240 4
- CropS 201 3
- Phys 101 4
- SoilS 201 [B] (GER) 3

**Second Semester**
- Ag Ec 210 3
- Arts & Humanities [H,G] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Phys 102 [P] (GER) 4

**Junior Year**

**First Semester**
- Bot 320 4
- Chem 220 2
- CropS 305 3
- Entom 340 or 343 4
- GenEd 110 [A] or 111 [A] (GER) 3

**Second Semester**
- CropS Elective 6
- CropS 412 1
- CropS 445 [M] 3
- CropS 498 or 499 1
- Tier III Capstone (GER) 3

**Minor in Crop Science**

A minor in crop science may be obtained by students from other departments. See crop science advisor.

**Transfer Students**

Students planning to transfer to Washington State University should take courses which meet crop science core requirements.

**Preparation for Graduate Study**

Preparation for graduate study requires the selection of courses that will benefit later work toward a Master of Science or a Doctor of Philosophy degree. Normally, preparation for an advanced degree in crop science includes course work outlined under one of the above options with a strong emphasis in plant sciences, chemistry, computer science, mathematics, and statistics.

**Soil Science Degree Program Requirements**

A Bachelor of Science degree in Soil Science requires completion of an area of specialization in environmental soil science, soil management, or sustainable agriculture. Each degree program is designed to meet the specific needs of the individual. At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses.

The flexibility of this major makes possible a wide variety of career opportunities as well as thorough preparation for graduate school. Examples of vocational opportunities include soil management positions with agribusiness, commercial farms, and land appraisal firms, soil conservation positions with the state and federal government, and technical positions with universities. In addition, many soil scientists go into some area of public service and international agriculture.

**FIRST YEAR REQUIREMENTS**

The first year requirements are common to all soil science majors:

**Freshman Year**

**First Semester**
- Bio S 103 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Math 107

**Second Semester**
- Bio S 104 [B] or Bot 120 [B] (GER) 4
- Chem 106 [P] (GER) 4
- Communication Proficiency [C,W] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

*Based on the mathematics placement exam scores, students may not need to enroll in Math 107.

**ENVIRONMENTAL SOIL SCIENCE DEGREE PROGRAM (122 HOURS)**

This option emphasizes the basic principles of soils as they relate to the quality of the environment.

**Sophomore Year**

**First Semester**
- Ag Ec 201 [S] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Phys 101 [P] or 201 [P] (GER) 4
- SoilS 201 [B] (GER) 3
- Elective

**Second Semester**
- Ag Ec 210 or Cpt S 405 3
- Arts & Humanities [H,G] (GER) 3
- Chem 240 4
- Geol 102 [P] (GER) 4

**Junior Year**

**First Semester**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- ES/RP 311 3
- ES/RP 444 3
- SoilS 301 [M] 3
- Elective
- Complete Writing Portfolio

**Second Semester**
- ES/RP 486 4
- Stat 212 or 412 3 or 4
- SoilS 421 3
- SoilS 441 3
- SoilS 442 3

**Senior Year**

**First Semester**
- ES/RP 486 4
- SoilS 413 3
- SoilS 442 3
- SoilS 441 3
- SoilS 421 3
- SoilS Elective 3
### SOIL MANAGEMENT DEGREE PROGRAM (125 HOURS) ✔FYDA

This option deals mainly with factors of the soil-plant environment important to crop production.

#### Sophomore Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoilS 431</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>SoilS 451 [M]</td>
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### SUSTAINABLE ARTICULTURE DEGREE PROGRAM (125 HOURS) ✔FYDA

This option integrates concepts of biodiversity, cropping systems, farm management, soil quality, and agroecology.

#### Sophomore Year

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<td>SoilS 421</td>
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#### Description of Courses

**Crop Science**

**CropS**

101 Introductory Field Crop Science 3 Production and adaptation of cultivated crops; principles affecting growth, development, management, and utilization.

201 [B] Growth and Development of World Crop Plants 4 (2-6) Prereq CropS 101 or c//. Ontogeny of temperate and tropical crop plants; basics of crop evolution, distribution, anatomy, morphology, and physiology.

301 Turfgrass Culture 3 (2-3) Prereq one semester of Bio S, Bot, or Hort. Principles of establishment and management of turf for lawns, parks, and golf courses. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 301).

302 Forage Crops 3 (2-3) Prereq Bio S 104 or Bot 120. Adaptation, production, and utilization of forage crops. Field trip required.

305 Principles of Weed Science 3 (2-3) Prereq Bio S 104, Bot 120, CropS 101, 201, or Hort 101 or 201; Chem 240. Weed science; weed identification, biology and control; herbicides and factors influencing their use.

360 [I] World Agricultural Systems 3 Prereq two semesters physical or biological sciences. Study of agro-environmental characteristics of world agriculture; historical and contemporary features of world food production.

410 Seed Science and Technology 3 (2-3) Prereq Bio S 104 or Bot 120. Principles of seed biology, development and physiology; seed quality evaluation. Cooperative course taught by WSU, open to UI students (PlSc 410).


412 Seminar 1 May be repeated for credit. Current literature and reports on research or special topics.

413 Biology of Weeds 3 Prereq Bot 320. Biology, ecology, and physiology of weeds; crop and weed interactions and interference. Credit not granted for both CropS 413 and 513. Cooperative course taught by UI (PlSc 413), open to WSU students.

445 [M] Plant Breeding 3 Prereq GenCB 301. Genetic principles applied to the improvement of plants.

469 Seed Production 3 Prereq CropS 201 or Hort 201. Principles and practices of seed production, seed quality evaluation and survey of seed industry. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 469).

498 Professional Internship V 1-3 May be repeated for credit; cumulative maximum 9 hours. Planned and supervised professional work experience. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

504 Plant Transmission Genetics 3 Prereq GenCB 301. Transmission of genes across generations; detailed study of the basic laws of genetics to predict and describe inheritance. Cooperative course taught by WSU, open to UI students (PlSc 505).
Description of Courses

Soil Science

SoilS
201 [B] Soil: A Living System 3 Prereq Chem 102. Physical, chemical, and physical properties of soils; fundamentals of soil ecology, soil-water-plant relations, soil fertility, and soil genesis.
301 [M] Land Use and Soil Management 3 Prereq SoilS 201. Soil and water conservation and management; land classification and reclamation; soils and environmental quality; sustainable agroecosystems.
374 Remote Sensing and Airphoto Interpretation 3 (2-3) Physical basis of remote sensing, fundamentals of aerial photography and image analysis applied to agriculture, forestry, wildland management problems.
412 Seminar 1 Same as CropS 412.
413 Introduction to Soil Physics 3 (2-3) Prereq Math 107; SoilS 201. Characterization of soil properties including water content and potential, and hydraulic conductivity; modeling water, solute transport, erosion, contamination of groundwater.
414 Environmental Biophysics 2 Prereq Math 107. Physical environment of living organisms (temperature, humidity, radiation, wind); heat and mass exchange and balance in plant and animal systems. Cooperative course taught by WSU, open to UI students (Bot 532).
415 Environmental Biophysics Laboratory 1 (0-3) Prereq SoilS 414 or c/f/. Experimental methods and procedures in environmental measurements; temperature, wind, radiation, and humidity measurements in biological environments. Cooperative course taught by WSU, open to UI students (Bot 436).
421 Environmental Soil Chemistry 3 Prereq Chem 105, 106, SoilS 201. Soil constituents; soil solutions: mineral equilibria; absorption reactions; acid/base reactions; oxidation-reduction; soil contaminants. Credit not granted for both SoilS 421 and 521.
431 Soil Biology 3 (2-3) Prereq Micro 101 or 201; SoilS 201. Basic aspects and significance of soil biology as related to soil ecology, soil biology, plant growth, and environmental problems.
441 Soil Fertility 3 Prereq SoilS 201. Nutrient management impacts on crop productivity, soil and water quality; mineral requirements; soil testing; plant analysis; inorganic and organic fertilizers.
462 Systems in Integrated Crop Management 3 (2-3) Same as Entom 462. Credit not granted for both SoilS 462 and 562.
474 Airphotos and Geomorphology 3 (2-3) Prereq physical geology. Remote sensing and photointerpretation methods applied to terrain landforms, soils, land use, vegetation. Cooperative course taught by WSU, open to UI students (For 415).

Department of Crop and Soil Sciences

505 Molecular Approaches for Improving Crop Quality and Adaptation 3 Prereq BC/BP 364 or Bot 320; CropS 445. Characterization and principles of improving crop quality and adaptation traits with emphasis on molecular breeding strategies. Cooperative course taught by WSU, open to UI students (PlSc 515).
508 Advanced Crop Physiology I 3 Prereq BC/BP 364. Physiological responses of crops to light, water and temperature; physiology of seed germination and root and shoot development. Cooperative course taught by WSU, open to UI students (PlSc 508).
509 Advanced Crop Physiology II 3 Prereq Bot 320, GenCB 301. Physiology and genetics of plant hormones, carbon and nitrogen assimilation and partitioning, and seed development. Cooperative course taught by WSU, open to UI students (PlSc 509).
510 Seminar 1 May be repeated for credit. Literature review; preparation and presentation of reports in crop science.
512 Topics in Crop Science 1 or 2 May be repeated for credit. Concepts of plant breeding, seed physiology, and technology; crop physiology and management.
513 Biology of Weeds 3 Graduate-level counterpart of CropS 413; additional requirements. Credit not granted for both CropS 413 and 513.
520 Plant Cytogenetic Techniques 3 (1-6) Prereq GenCB 301. Plant genes and chromosomes. Cooperative course taught by UI (PlSc 520), open to WSU students.
527 Experimental Methods in Weed Science 2 (1-3) Prereq Bot 320. Hands-on exposure to methods and instrumentation commonly used in weed science research; emphasis on laboratory techniques with herbicides. Cooperative course taught by WSU, open to UI students (PlSc 527).
533 Plant Tissue, Cell and Organ Culture 3 (1-6) Same as Hort 533.
536 Plant Genetic Engineering Laboratory 2 (0-6) Prereq Bot 325. Experiments: synthesis and cloning of a gene, expression of a heterologous protein in yeast and barley.
539 Herbicide Fate and Mode of Action 4 Prereq CropS 305, BC/BP 364, Bot 320. Fate of herbicides in plants, soil, and water; physiological and biochemical mode of herbicide action; mechanisms of herbicide resistance. Cooperative course taught jointly by WSU and UI (PlSc 539).
546 Plant Breeding 3 Prereq GenCB 301. Principles and practices of genetic plant improvement. Cooperative course taught by UI (PlSc 546), open to WSU students.
556 Insecticides: Toxicology and Mode of Action 1 Same as Entom 556.
557 Herbicides: Toxicology and Mode of Action 1 Same as Entom 557.
558 Pesticides Topics 1 Same as Entom 558.
560 Special Projects or Independent Study Variable credit. S, F grading.
700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.
702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.
800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.
Degree Program Requirements

During the freshman and sophomore years the economics major should normally begin economics courses and complete a major portion of the General Education Requirements. In the junior and senior years the economics major may choose from a variety of courses to prepare for employment or postgraduate education. Majors must complete courses in the following area:

Core: Econ 101 (or 198), 102 (or 198); 301 or 302; 311, 401, one Econ 400 elective, 490, three 400-400-level Econ electives.

Fields: 12 hours of 300-400-level Econ and/or related courses, at least 6 hours of which must be at the 400 level.

Mathematics: One of: Math 140, 171, 202, or 206.

The chair of the department and/or the dean of the college must approve in writing any portion of 300-400-level courses required by the major program. The schedule below allows students to complete any of the options within the Economics department.

Options in Economics

Students majoring in economics and satisfying the core, field and math requirements may elect, in consultation with their major advisor, either to self-design an additional 12-hour area of specialization or to choose from one of the 12-hour options below.

Economics of Financial Markets. Econ 320, 420, Fin 325, one of Econ 415, 499; Fin 421, 422, 425, 427.

Economics of Public Policy. Econ 340, 499; two of Econ 320, 345, 350, 360, 415, 420, 450, 455, 460, 481.

International Economic Development. Two of Econ 416, 418, 470, 472; two of Ag Ec 420, 425; Anth 418, 419; Econ 499, ES/RP 450, I Bus 380, 481, 492; Pol S 460.

Labor Economics. Econ 350, 450; two of Econ 312, 455, 499; Mgt 450, 456.


Preparation for Graduate Study. 12 hours of 300-400-level courses.

The schedule below allows students to complete any of the options within the Economics department.

Students in the College of Business and Economics must demonstrate performance at a level expected of seniors in their major by presenting WSU graded course work to satisfy at least 75% of the 300-400-level courses required by the major program. The chair of the department and the dean of the college must approve in writing any portion of 300-400-level credits which is to be satisfied by transfer, correspondence, independent study, or other credit which may not carry WSU grade points. Additional transfer, correspondence, and independent study credit (within university limits on these credits) may count toward the 120 hours required for the degree and/or satisfy requirements other than major courses.

Only general elective courses that are not GERS or core/major requirements may be taken pass, fail.

An honors thesis is required for Honors students.

Minor in Economics

A minor in economics is often a desirable complement to majors such as business administration, engineering, education, agricultural economics, forestry, political science, and history. A minor in economics is offered to students who complete 18 credits, including at least 6 credits of economics core courses, and meet the university’s minimum g.p.a. requirement of 2.0 are eligible to apply for certification with the Department of Economics.
hours of economics. Consult the department for an acceptable program of study.

Bachelor of Arts in Business, Economics Option
A degree in business with an option in economics is also available. Students in this program take business core courses in accounting, business law, decision sciences, finance, management, and marketing along with 24 hours of economics courses.

Students planning to begin a career immediately after graduation will find openings in many areas of business and government. Special programs of study for particular areas can be developed with the departmental advisors.

Preparation for Graduate Study
Better economics programs expect calculus through vector calculus (Math 171, 172, 273), linear algebra (Math 220), and econometrics (Econ 311 or 415). Students planning on graduate study in economics are urged to select an appropriate program of study, including a self-designed additional 12 hours, in consultation with a member of the faculty of the Department of Economics.

Students planning graduate study, whether in economics, law, business, or public administration, are advised to develop skills through in English composition and additional work in statistics. Recommendations for specific graduate areas include:

**Law School:** Acctg 250; B Law 210; Pol S 300; and, depending on legal interests, elective Econ courses from the following: Econ 340, 364, 450, 460, 470, 481; B Law 410. 411 suggested.

**Business School:** Acctg 230; MIS 150. Additional courses in business are not required for admission to most graduate schools of business. It might be useful, however, to take a second course in accounting, Acctg 231, and to take introductory courses in the major areas of business: B Law 210, Fin 325, Mgt 301, Dec S 340, Mktg 360.

**Economics:** Math 171 and 220 are recommended to satisfy the major's math requirements. Calculus through Math 273 and Econ 408 may also be useful.

**Public Administration:** Acctg 230 and Pol S 340; MIS 150 and Pol S 443, 446 recommended. Elective: Econ 340.

Transfer Students
Students planning to transfer into economics by the end of their sophomore year should have completed the introductory economics courses if they plan to complete the required work for a degree in two additional years.

Description of Courses

**Economics**

**Econ**


198 [S] Economics Honors 3 Introduction to economic theory and policy issues. 1

301 Theory of the Firm and Market Policy 3 Prereq Econ 101. Price determination and market behavior under different market structures and the problems posed for public policy; not calculus-based. Credit not granted for both Econ 301 and 302.

302 Intermediate Microeconomic Theory 3 Prereq Econ 101; Math 171 or 202. Calculus-based intermediate microeconomic theory for majors in economics and agricultural economics. Credit not granted for both Econ 301 and 302.

311 Introductory Econometrics 3 Prereq Econ 101, 102. Methods of empirical analysis in the context of economic analysis and forecasting problems.


320 Money and Banking 3 Prereq Econ 102. Analysis of banking institutions and monetary policy in the US, with comparison to abroad.

330 (255) Economics of Sports in America 3 Prereq Econ 101. Economic aspects of American sports; fan demand; advertising; team output decisions; league/conference organization; government and sports.

340 [M] Public Finance and Taxation 3 Prereq Econ 101, 102. Theory and practice of the public sector; taxes, expenditures, and administration at local, state, and federal levels.


360 Regulation in American Society 3 Prereq Econ 101. Economic and political analysis of the origins, development, and application of government regulation.

364 Transport Economics 3 Prereq Econ 301. Characteristics of transportation systems; market structure; public policy of transport logistics.

401 Intermediate Macroeconomic Analysis 3 Prereq Econ 320; Rec Math 171 or 202. Income, employment, and inflation theory with policy implications.

402 History of Economic Thought 3 Prereq Econ 102. Development of economic thought; special focus on selected schools, including Greeks, scholastics, mercantiliists, physiocrats, classicals, and neo-classicals. Cooperative course taught by UI (Econ 405), open to WSU students.

408 Mathematics for Economists 3 Same as Math 408.

410 Elements of Mathematical Economics 3 Prereq Econ 301; Math 273. Introduction to mathematical optimization in economic theory.

411 (415) [M] Introduction to Econometrics 3 Prereq Dec S 215, Econ 311, or Stat 443; Econ 101. Econometric methods in relation to the substantive achievements of empirical econometrics.

416 Comparative Economic Systems 3 Prereq Econ 102. Key institutions, policies, and economic performance of different capitalist and socialist societies and the transition of Soviet-type socialist economies, Eastern Europe; capitalism as a global system.

418 [S] Global Capitalism Today: Perspectives and Issues 3 Prereq GenEd 111; Econ 101 or 102. Logic and consequences of capitalism as global system; multinational corporations; underdevelopment and overdevelopment; external debt, population, and environmental crisis.

420 Monetary Theory and Policy 3 Prereq Econ 320. Current issues in monetary economics with a special emphasis on policy.

430 [M] American Economic History 3 Prereq Econ 101 or 102; Rec Econ 301. Development and changes in the American economy from the colonial period to the present.

450 Collective Bargaining 3 Collective bargaining from an economic perspective: union-management negotiations in the U.S. private sector.

451 Introduction to Micro and Macro Economics 3 Prereq admission to MBA program. Topics in calculus and principles of micro and macro economics for entering MBA students.

455 The Economics of Health Care 3 Prereq Econ 101. The economics of allocating, financing and delivering medical care services.

460 Concentration of Corporate Power and Anti-trust Policy 3 Prereq Econ 101. Extent, causes, and effects of economic power held by US corporations; antitrust laws and other legislation and regulating business practices.

464 Freight Transportation Economics 3 Prereq Econ 301, 311. Analysis of market structure, conduct, and performance of the intercity freight transportation industry.

470 International Trade and Finance 3 Prereq Econ 470. Analysis and description of international trade flows; commercial policy; multinationals, foreign exchange markets; open economy macroeconomics; international monetary systems.

471 Economics of Regional Integration 3 Prereq Econ 102. Economics and politics of regional integration and economic reforms in Western Europe, North America, East Asia, Eastern Europe and Russia.

472 Economic Development and Underdevelopment 3 Prereq Econ 102; Rec Econ 301. Development theories, policies, and performance of Third World economies; population, land reform, foreign trade, aid, investment, debt, dependency.

475 Regional/Urban Economics 3 Prereq Econ 101, 102. Location of economic activity, transportation problems, resource and product distribution methods, urban structure and growth, and related policy issues. Cooperative course taught by UI (Econ 430), open to WSU students.

481 Economics of Environmental Issues 3 Prereq Econ 101; Rec Econ 301. Environmental interactions; efficient allocation of environmental resources; market failure and environmental degradation; economic analysis of environmental policies.

490 [M] Economics Capstone 3 Prereq senior in Econ, completion of Econ core. Integration of economic theory and field courses; assessment.

497 Economics Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Professional off-campus internships arranged or coordinated by departmental faculty according to student’s field of specialization. S. P. grading.

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1Open only to students in the Honors Program.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
500 Macroeconomic Analysis 3 Prereq Econ 401; 408 or one year calculus or c/c in Econ 408. General equilibrium theories of aggregate output and the price level; consumption, investment and money demand functions; monetary and fiscal policy; business cycles, and rational expectations.
501 Microeconomic Theory 3 Prereq Econ 301; 408, one year calculus, or c/c in Econ 408. Static optimization; theory of the consumer and the firm; markets and resource allocation.
502 Advanced Macroeconomic Theory 3 Prereq Econ 500. Mathematical macro general equilibrium and disequilibrium.
510 Mathematical Models of Economics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 503. Exposition of the mathematical structure of economic theories.
511 Econometrics 3 Prereq Ag Ec 510, Stat 443 or 548. Econometric models; review of linear model; introduction to large sample theory; simultaneous equations modeling.
512 Advanced Econometrics 3 Prereq Econ 511. Advanced topics in econometrics.
530 Economic History 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 411 or 511; Rec Econ 501. Changes in the American economy; introduction to the new economic history.
540 Advanced Public Finance 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 503. Positive effects of government policy, optimal tax theory; public goods; social choice theory; cost-benefit analysis.
552 Labor Theory 3 May be repeated for credit; cumulative maximum 6 hours. Developments in labor theory; wage theory and recent journal literature.
560 Seminar in Industrial Organization 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 460. Industrial organization, market conduct, and performance; appraisal of antitrust legislation.
570 International Factor Movement 3 Prereq Econ 470, 501. The basic nonmonetary theory; new theories of international trade; tariffs and commercial policy; effects of economic integration; international movements factor.
571 Monetary Aspects of International Economics 3 Prereq Econ 470, 500. Balance-of-payments; adjustment to payments imbalance; the foreign exchange market; open economy macroeconomic models and macroeconomic policy coordination; international monetary institutions.
572 Theoretical and Institutional Aspects of Economic Development 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 500. Selected topics in the political economy of developing nations.
590 Special Topics in Economics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing.
592 Managerial Economics for Decision Making 3 Prereq Econ 101, 102; Math 202. Interpreting information from the organizational and legal environments to analyze, anticipate, and determine optimal economic decision in a global environment.
600 Special Projects or Independent Study Variable credit. S, F grading.
700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.
702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.
800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Educational Leadership and Counseling Psychology


The department offers courses of study leading to undergraduate minors in leadership studies and sport management and graduate degrees of Master of Education, Master of Arts in Education, Doctor of Education, and Doctor of Philosophy in Education. For the master’s and doctoral degrees, students may specialize in athletic administration, administration, higher education, curriculum, counseling, and educational psychology (PhD levels). Each area of specialization has a required core of courses. Information on the specific requirements for each degree is available from the Department of Educational Leadership and Counseling Psychology.

Admission to Graduate Study
(Counseling and Educational Psychology)

Individuals applying for admission to do graduate study must make application to the Graduate School and submit the following materials to the Department of Educational Leadership and Counseling Psychology Chair: letter of application describing professional objectives; completed departmental application form; Graduate Record Examination scores; official college transcripts; and three letters of recommendation from individuals qualified to comment on the applicant’s academic and professional abilities. The Doctor of Philosophy in Education, with a specialization in counseling psychology, is designed for individuals who intend to become licensed counseling psychologists. The doctoral specialization in counseling psychology is designed for full-time study and is accredited by the American Psychological Association. For persons interested in the PhD specialization in counseling psychology, and master’s degree programs in counseling, the department considers applications for admission only once a year. These applicants must submit their materials to the chair of the department by February 1 for admission the following summer or fall semester.

Applications for admission to a graduate program are reviewed by faculty on an individual basis, and notification of the faculty’s action is provided in writing by the chair of the department.

Certification (Educational Administration)

A certification program for the initial and continuing certificates for superintendents, principals, and program administrators is offered in the Department of Educational Leadership and Counseling Psychology. Candidates for administration certification must comply with the following requirements:
1. All candidates for advanced degree or certificate must be formally admitted to the university as specified in the current Graduate Study Bulletin. Admission will be considered after transcripts have been received from the institution which granted the baccalaureate degree as well as from institutions which have granted postgraduate educational credit.

2. All candidates not holding a master’s degree in an appropriate area of specialization must be admitted to the university and the master’s degree program in the respective department.

3. All candidates for certification must submit the following: application to the Graduate School; application for certification; three reference forms.

4. Admission to the certification program is granted only after the WSU Professional Education Advisory Board (PEAB) reviews the completed application process.

**Undergraduate Minors**

The Department of Educational Leadership and Counseling Psychology offers undergraduate minors in Leadership Studies and Sport Management.

**Leadership Studies.** Students majoring in any academic area may also take a minor in Leadership Studies. The minor in Leadership Studies requires 18 semester hours, 13 of which must be from 300-400 level courses. Students must earn credits from courses in the core curriculum and the supporting interdisciplinary curriculum approved for the minor. Students must complete 9 and no more than 12 core curriculum credits from the following: 6 credits from: Ed Ad 389, 440; 3 credits from: either Ed Ad 497, 498, or 499. In addition to the 9 credits from the core curriculum, students must earn the balance of the 18 credits from courses listed in the interdisciplinary supporting curriculum; choose 9 credits from: CAC 495, Mgt 401, Pol S 456, SpCom 434, W St 315. For more detailed information, contact www.edu/elep/leadership_studies.

**Sport Management.** The minor in sport management requires 18 semester hours of course work and practical experience. The minor is designed for students with an interest in sport organizations or sport-related business. Sport management is an appropriate area for students with a variety of career interests, including business, communication, criminal justice, law, and social sciences.

Students interested in declaring a minor in leadership studies or sport management should contact the Department of Educational Leadership and Counseling Psychology.

**Record of Distinction**

The Department of Educational Leadership and Counseling Psychology sponsors and hosts a number of state, national and international programs including the A. A. Cleveland Conference, High School Equivalency Program and the Center for the Study of the Department Chair. Superintendent certification course work is also offered throughout the state at branch campuses in Spokane, Tri-Cities, Vancouver, and internationally in the Far East, as well as on the Pullman campus. Counseling certification is offered at the Tri-Cities branch campus. The College of Education has excellent facilities for graduate study and research. Modern facilities in Cleveland Hall include a comprehensive George B. Brain Education Library, Mark W. Brands Computer Lab and research studies in the Attentional Processes Laboratory. Extensive use also is made of the university Computing Service Center and the university Instructional Support Services.

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551 Doctoral Practicum In Counseling Psychology


553 Doctoral Practicum in Counseling Psychology III V 2 (1-3) to 4 (2-6) May be repeated for credit; cumulative maximum 12 hours. Prereq CoPsy 552. Supervised experiences in the application of counseling psychology theory and techniques. S, F grading.

561 Continuing Counseling ESA Certification V 3-6 May be repeated for credit; cumulative maximum 6 hours. Prereq Initial Counselor Certification; equivalent of 180 full days of school counselor experience. Peer review requirements for continuing level ESA Counselor Certification.

578 Career Services and Programs for Persons with Disabilities 3 Graduate-level counterpart of CoPsy 478; additional requirements. Credit not granted for both CoPsy 478 and 578.

590 Seminar in Research in Counseling Psychology 4 By interview only. Recent developments in counseling psychology research and design applied to PhD dissertation proposals. S, F grading.

597 Counseling Psychology Internship V 2-4 May be repeated for credit; cumulative maximum 8 hours. Supervised internship experience, individual and group counseling, evaluation, assessment, supervision, and teaching. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Educational Administration

Ed Ad

389 Undergraduate Leadership Development 3 Basic leadership through skills, styles and conflict management, critical thinking, problem solving, organizational behavior, and leadership issues.

440 Principles of Service and Leadership 3 Prereq Ed Ad 389. Individual and group opportunities to apply leadership skills, theory, and principles to a proposed service learning project.

497 Peer Leadership V 1-4 development of leadership and interpersonal skills for specific peer leadership and paraprofessional positions. S, F grading.

498 Undergraduate Leadership Practicum V 1-4 Prereq Ed Ad 389 or c/. Weekly seminar; development of and reporting on significant project associated with a leadership position held by the student. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Philosophy of Education 3 Development of American educational philosophy.

506 Social Context of Education 2 The interpretation of social context issues including historical, legal and cultural factors as these influence policies and practice in education.

507 Social Foundations of Education 3 Educational adaptations to the economic and social trends and forces.

510 Improvement of Instruction 3 Rec teaching experience. Analysis and evaluation of instructional models with emphasis on information processing; implications for changing teaching style.

511 Models of Teaching 2 Theoretical models and strategies of teaching in classrooms; relationships between specific models and curriculum priorities.

514 Basic Principles of Curriculum Design 2 or 3 Rec teaching experience. The application of theoretical concepts and approaches in the planning and design of curricula.

515 Curriculum Implementation 3 Rec teaching experience. Research and practice; innovation and change in curricular organization emphasizing implementation.

516 Supervision 2 or 3 Rec teaching experience. Theory and practice of the supervision of instruction in elementary and secondary schools.

517 In-service Programs 3 For directors, supervisors, specialized personnel, principals, and superintendents with responsibility for in-service programs; practices and procedures in in-service education.

518 Educational Technology 3 Rec T & L 445 or 446. Research and theory of communication related to instructional resources and current educational technology; problems of planning and administering programs.

520 Seminar in Curriculum and Instruction 2 or 3 Rec teaching experience. Contemporary issues, analyses and developments of educational programs.

521 Topics in Education V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of education.

530 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Topical issues in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.

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536 Introduction to Qualitative Research in Education 3 Introduction to the theory and methods of qualitative research; field relations, data collections, data analysis, hypothesis development, and theory generation.

537 Advanced Qualitative Research in Education 3 Prereq Ed Ad 536. Advanced theory and methods of qualitative research; theoretical foundations, data collection and analysis, and reporting.

538 Special Topics in Qualitative Research in Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq Ed Ad 536.

540 Current Issues in Sports 3 Current issues and problems in sports, and their effect on the administration of sport programs.

560 Student Personnel Services in Higher Education 2 or 3 Philosophy, structure, functions, and organization of student personnel services.

561 Students Development Theory, Research, and Application 3 Student development theory, related research and the application of theory to practice in student affairs work.

562 Professional Problems in Student Affairs 3 Prereq Ed Ad 560, 561. The organization, programs and professional issues related to selected student affairs programs and units.

565 Master’s Practicum in Student Affairs 3 (0-9) Prereq graduate student with 15 hours of completed course work in education. Selected supervised experiences in professional student affairs settings which provide for the investigation/application of theory/methods gained through formal course work.

570 Community and Technical Colleges 3 For teachers and administrators. Development and function of community and technical colleges.

571 Undergraduate and Community/Technical College Teaching 3 Rec Ed Ad 570 or 572. Concepts, principles, issues, and procedures in undergraduate curriculum development; goal-oriented educational strategies and delivery systems.

572 The American College and University 3 History, philosophy, objectives, and issues of colleges and universities as social institutions.

573 Issues in Higher Education 3 Selected contemporary issues in higher education.

574 Seminar in Higher Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Contemporary issues, analyses and developments of higher education programs and institutions.

575 Administrative Concepts for Physical Education, Sport and Athletics 3 Administration focusing on democratic human behavior in organizations with specific attention to the leader, the setting, and the process.

576 Promotions and Management of Sport Programs 3 Public relations, promotions, assessment and fiscal management of sport programs.

577 The Law in Physical Education, Sport, and Athletics 3 Legal aspects of coaching, teaching, and administering sport, physical education, and athletic programs.
578 Higher Education and the Law 3 Legal aspects of higher education with special reference to administrators, faculty, and students in universities, colleges, and community colleges.

579 Administration of Higher Education 3 Organization, administration and leadership of universities, colleges, and community colleges.

580 School Organization and Administration 3 Rec teaching experience. Readings and discussions on the theories and practices of school organization and administration. Co-operative course taught jointly by WSU and UI (Educ 509).

582 Policy Formation in Education 3 Rec Ed Ad 580. Political and organizational policy formation processes in educational organizations.

583 Community Relations in Education 3 Social, political, and economic relationships between education and the community; methods of public polling and campaign strategy techniques.

584 Personnel Relationships in Public Schools 3 Human relations in education; problems involved and practical solutions considered.

585 Financial Management in Education 3 Economics and financing of education; financial planning, budget development, investment analysis, bonding, cost effectiveness; current trends in educational finance. Cooperative course taught jointly by WSU and UI (Educ 535).

586 Management of Facility Planning 3 Principles and procedures in the development of educational specifications, conducting needs assessment, forecasting; selecting an architect.

587 Seminar in School Administration V 1-6 May be repeated for credit; cumulative maximum 6 hours. Interdisciplinary seminars; related studies; discussions in several areas by specialists.

588 The Law and Education 3 Fundamental legal principles within which public education functions; applicable school codes of Washington and other states; review important court cases.

589 Leadership Development Seminar 3 Improving knowledge and skills in strategic planning, decision making, leadership issues, conflict, motivation, staff development, productivity, and stress.

590 Internship 3 or 6 May be repeated for credit; cumulative maximum 12 hours. By interview only. Internship in professional positions. S, F grading.

594 Educational Internship V 2-9 May be repeated for credit; cumulative maximum 9 hours. Same as Kin 594.

596 Preparing Grant Proposals 3 Identification of funding sources; analysis, evaluation, and production of grant proposals.

599 Superintendent Institute 3 May be repeated for credit; cumulative maximum 4 hours. By interview only. Current concepts and practices in the superintendent; policy, planning, and implementation techniques. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Educational Psychology

EdPsy 322 Topics in Student Personnel Work 2 or 3 Educational psychology, theories of human behavior, and legal and ethical considerations related to student personnel work.

401 Classroom Assessment, Elementary 2 Prereq certified education major; T & L 301; 315/316. Principles and practice of high-quality classroom assessment in the elementary schools.

402 Classroom Assessment, Secondary 2 Prereq certified education major; T & L 303. Principles and practice of high-quality classroom assessment in secondary schools.

490 Instructional Practicum V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 8 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

502 Theoretical Foundations of Learning and Instruction 3 Historical and contemporary theories of learning and instruction: application of theory in counseling and teaching settings.

503 Advanced Educational Psychology 2 Theories of learning and development as applied to education.

504 Classroom-focused Research Methods 2 Methods, design, implementation, and application of results in classroom context.

505 Research Methods I 3 Research methods; literature review; design, implementation, and interpretation of results.

508 Educational Statistics 4 Descriptive statistics: central tendency, variability, correlations, and regressions; introduction of tests of significance; reporting and interpreting educational research data. Cooperative course taught jointly by WSU and UI (EdAd 507).

509 Educational Measurements: Test Development and Assessment 2 or 3 Rec EdPsy 508. Theory and use of standardized educational measurement instruments; intelligence, aptitude, and achievement tests; measurement of outcomes.

510 Assessment for Student Learning 3 Prereq graduate standing. Assessment of student learning, school and district evaluation; particularly appropriate for school administrators.

519 Practicum in College Instruction 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. By interview only. Supervised experience in college teaching. S, F grading.

521 Topics in Educational Psychology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of educational psychology.


568 Research Methods II 3 Prereq EdPsy 505, 565. Integration and application of research skills in writing proposals, dissertations, papers for publication, interpreting, critiquing, and synthesizing research studies.

569 Seminar in Quantitative Techniques in Education 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Prereq EdPsy 565. Application of parametric and nonparametric statistics, data processing using computer packages in educational research.

570 (567) Introduction to Program Evaluation 3 Prereq EdPsy 505. Introduction to strategies and techniques for evaluation of educational and social programs.

571 Advanced Program Evaluation 3 Prereq EdPsy 570. Advanced methods and techniques of program evaluation.

579 Educational Psychology Internship V 2-4 May be repeated for credit; cumulative maximum 8 hours. Supervised internship experience in educational psychology, measurement and evaluation. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Sport Management

SpMgt 276 Introduction of Sport Management 3 Not open to first-semester freshmen. Nature of sport management; scope of sport related business; related literature.

284 Introductory Principles of Coaching 2 Overview of coaching responsibilities and basic understanding in the sport sciences utilized in coaching.

290 Sport Programs 3 (2-3) Philosophies and program content of public/private sport programs; laboratory experiences in school, college, and community sport programs.

365 Ethics and Moral Reasoning in Sport 3 Prereq sophmore standing. Understanding and application of ethical theory and principles of moral reasoning to the analysis of issues and dilemmas in sport.

367 Sport in American Society 3 Prereq SpMgt 276 or c//. Examination of the role of sport in contemporary American society as well as the relationship between sport and other social institutions.

394 Practicum in Sport Management V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

399 Professional Work Experience V 1 (0-3) to 6 (0-18) Prereq sophomore standing, by interview only. Paid or volunteer, off-campus work experience with a sport organization. S, F grading.


477 Sport Law 3 Legal aspects of coaching, teaching, and administering sport programs.

488 Current Trends in Sport Management 2 Prereq SpMgt 276; 468 or c//. Current trends and issues; professional development, internship and employment procedures.

489 Theory and Application 3 Prereq SpMgt 367; senior standing. Investigation and application of the components of the sport management profession.

490 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. S, F grading.
Laboratory experience is emphasized to provide management, teaching, sales, and consulting including research, design, development, operations, prepare students for entry into any of the multitude of toward the basic theory and concepts which pre-
genineers. The courses of study are therefore oriented in the areas of general interest to all electrical en-

The curricula in computer science prepare stu-
dents for a variety of careers that involve the extensive use of computers. All graduates will have a solid technical background in mathematics and the pure and engineering sciences. Courses in the discipline include structured programming, systems programming, data structures, software engineering, computer architecture, operating systems concepts, programming language concepts, and theoretical computer science. An option area course sequence allows students to specialize in areas such as soft-
ware engineering, computer graphics, scientific computing, or artificial intelligence.

Certification

Students may apply for certification into any of the three programs of study after completion of 30 sem-
ter hours to include Bio S 102 or Chem 105; Cpt S 150, 203, or 251; Math 171, 172, Phys 201, 202. Applications for certification are accepted prior to November 15 and to March 15 for certification ef-
tive the following spring and fall, respectively. Eligible students will be ranked in accordance with several criteria including WSU and transfer g.p.a. and g.p.a. in mathematics, science, and in electrical engineering or computer science courses. Final accept-
ance will be made after current semester grades are available, and students will be notified of the decision as soon as possible.

Degree Program Requirements

No courses listed in the chosen schedule of studies may be taken on a pass, fail basis. The student’s selection of General Education courses must re-

Electrical Engineering Degree

Program (128 Hours) ✨FYDA

Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>E E 110 or 120</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
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Second Semester

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<tbody>
<tr>
<td>Cpt S 2511</td>
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<td>Math 172</td>
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<tr>
<td>Math 220</td>
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<td>Phys 201 [P] (GER)</td>
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Sophomore Year

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<td>Biological Science [B] (GER)</td>
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<tr>
<td>C E 213</td>
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<tr>
<td>E E 214</td>
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<tr>
<td>Math 273</td>
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<tr>
<td>Phys 202 [P] (GER)</td>
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Second Semester

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<tr>
<td>C E 214</td>
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<td>E E 262</td>
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<tr>
<td>E E 314</td>
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<tr>
<td>Economics [S] (GER)</td>
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<td>Math 315</td>
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Junior Year

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<tr>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>E E 311</td>
<td>3</td>
</tr>
<tr>
<td>E E 321</td>
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<tr>
<td>E E 331</td>
<td>3</td>
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<tr>
<td>E E 352</td>
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Second Semester

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<tr>
<td>C E 341</td>
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<tr>
<td>E E 351</td>
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<td>E E 361</td>
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<tr>
<td>E E 362 [M]1</td>
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<tr>
<td>Engl 402 [W] (GER)2</td>
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Senior Year

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<td>E E 489</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>M E 301</td>
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<td>Stat 443</td>
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Second Semester

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<tr>
<td>E E 480</td>
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<tr>
<td>Technical Electives3</td>
</tr>
<tr>
<td>Tier III Capstone [H,G,S,K] (GER)</td>
</tr>
</tbody>
</table>

1Cpt S 150 can be substituted for Cpt S 251.  
2E E 362 and Engl 402 are taken concurrently.  
3Electives must be selected with an advisor’s ap-
proval and must include sufficient design credit to satisfy the department’s accreditation requirements. Technical electives must all be 300-400-level courses and include at least one of the following individual courses or sets of courses: E E 416, 420, 434 and 444; or 476 and 477. Technical electives must include at least 15 hours of electrical engineering courses. The remaining 3 hours may be in math, science, computer science, or engineering.

### ELECTRICAL ENGINEERING WITH COMPUTER ENGINEERING OPTION DEGREE PROGRAM (133 HOURS)  ✔FYDA

#### Freshman Year

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<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Cpt S 150 Prog Design</td>
<td>4</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math 171 [N] (GER)</td>
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<tr>
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<tr>
<td>Cpt S 250</td>
<td>4</td>
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<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
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<tr>
<td>Math 172</td>
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<td>Math 216</td>
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<tr>
<td>Phys 201 [P] (GER)</td>
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#### Sophomore Year

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<tr>
<th>First Semester</th>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Cpt S 350</td>
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<tr>
<td>E E 214</td>
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<td>Math 220</td>
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<tr>
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<tr>
<td>E E 261</td>
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<td>E E 262</td>
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<td>Economics [S] (GER)</td>
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<td>MSE 302</td>
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#### Junior Year

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<th>First Semester</th>
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<td>E E 311</td>
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<td>E E 321</td>
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<td>E E 331</td>
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<td>E E 352</td>
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<td>Cpt S Option Course</td>
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<td>E E 261</td>
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<td>E E 314</td>
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<td>Engl 402 [W] or 403 [W] (GER)</td>
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#### Senior Year

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<tr>
<td>C E 213</td>
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<td>Cpt S 422 [M]</td>
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<td>E E 424</td>
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<td>E E 434</td>
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<td>Tier III Capstone [H,G,S,K] (GER)</td>
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### COMPUTER SCIENCE DEGREE PROGRAM (124 HOURS)  ✔FYDA

#### Freshman Year

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<th>First Semester</th>
<th>Hours</th>
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<td>Engl 101 [W] (GER)</td>
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<td>Math 171 [N] (GER)</td>
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<td>Math 172</td>
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#### Sophomore Year

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<td>Math 273</td>
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<td>Phys 201 [P] (GER)</td>
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<td>Math 315</td>
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#### Junior Year

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<th>First Semester</th>
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<tr>
<td>Cpt S 360 [M]</td>
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<tr>
<td>Cpt S Option Course</td>
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<tr>
<td>E E 261</td>
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<td>E E 262</td>
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<td>E E 314</td>
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#### Senior Year

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<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>Arts and Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Cpt S 450</td>
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<td>Cpt S 452</td>
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<td>Cpt S 495</td>
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<td>Cpt S Option Course</td>
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### Minors

#### Computer Science

- The minor in computer science consists of 17-22 credits which must include Cpt S 150, 250, 350, and two 400-level Cpt S courses excluding Cpt S 405. All prerequisites for minor courses must be met. The minor program must be approved by the Computer Science Undergraduate Coordinator.
- Electrical Engineering: 16 semester hours of courses in electrical engineering are necessary to earn a minor. 9 of which must be upper division. Three courses (8 semester hours) in addition to E E 214, 261, 262, and 314 are required.
- Electrical Engineering with Computer Engineering option: 16 semester hours of courses in electrical engineering are necessary to earn a minor, 9 of which must be upper division. Two courses (five hours) in addition to E E 214, 261, 262, 314 are required.
Transfer Students

Students planning to transfer from other institutions should carefully note the sequence of courses listed above. Transfers from community colleges should consult the booklet “Transfer Programs for Washington Community Colleges” or should write directly to the School of Electrical Engineering and Computer Science for specific information.

Description of courses

Electrical Engineering

E E

110 Introduction to Electrical Engineering 2 Intro-duction to basic electrical engineering con-cepts; the electrical engineering profession.

120 Innovation in Design 2 Same as M E 120.

214 Design of Logic Circuits 3 (2-3) Prereq Math 172 or c//. Functional approach to design of electronic logic circuits; exposure to elementary circuit concepts and design with integrated circuits.

261 Electrical Circuits I 3 Prereq Math 315 or c//; Phys 202; or c// in E E 262. Application of fundamental concepts of electrical science in linear circuit analysis; mathematical models of electric components and circuits.

262 Electrical Circuits Laboratory I (0-3) Prereq E E 261 or c//. Electrical instruments; labora-tory applications of electric laws; transient and steady-state responses of electrical circuits.

304 Introduction to Electrical Circuits 2 Prereq Math 172, Physics 202. Basic DC and AC cir-cuits.

305 Introduction to Microprocessors 2 Prereq Cpt S 150, 203, or 251. Digital components, circuits, and number representation; microprocessor organization, instruction sets, and system design.

311 Electronics 3 Prereq E E 214, 261 with grade of C or better; major or minor in E E. Funda-mental device characteristics including di-odes, MOSFETs and bipolar transistors; small- and large- signal characteristics and design of linear circuits.

312 Electronic Devices and Circuits Laboratory I 1 (0-3) Prereq c// in E E 311. Experiments in electrical circuits, measurements and elec-tronics; principles of measurements and mea-suring instruments.

314 Microprocessor Systems 3 (2-3) Prereq Cpt S 150 or 251, E E 214. Microprocessor system architecture, instruction sets, and inter-facing; assembly language programming.

321 Electrical Circuits II 3 Prereq E E 261 with grade of C or better; major or minor in E E. Graphs, loop and cut-set analysis, state space analysis, Laplace transforms, network func-tions, frequency response, two-ports, energy and passivity.

322 Electrical Engineering Laboratory I 1 (0-3) Prereq c// in E E 321. Experiments in electro-meric fields, measurements, and electronics, principles of measurements and measuring instru-ments.

331 Electromagnetic Fields and Waves 3 Prereq Math 315; Phys 202; major or minor in E E. Fundamentals of electric fields, magnetic fields, and electromagnetic waves.

341 Communication Systems 3 Prereq E E 321. Analog communication, amplitude and fre-quency modulation, Fourier transform, filtering, receiver performance; sampling theorem, DFT.

351 Distributed Parameter Systems 3 Prereq E E 331. Transmission lines, plane waves, wave-guides, antennas, fiber optics.

352 E E Laboratory I 1 (1-6) Prereq Cpt S 150, 203, or 251; E E 311, 321, or c//; major in E E. Experiments in electrical circuits, mea-surements and electronics; principles of mea-surements and measuring instruments.

361 Electrical Power Systems 3 Prereq E E 321, 331. Power system hardware; transformers, and electromechanical machinery; introduc-tion to power system operation.

362 [M] Power System Laboratory I 2 (0-6) Prereq c// in E E 361, c// in E E 341, c// in Engl 402 or 403. Experiments in simulation, modeling, transformers, rotating machines, and transmission lines.

380 Preparation for Professional Practice 1 Prereq junior standing in Cpt S or E E. Re-sume writing, investigation of job and intern-ship opportunities; curriculum integration; professional ethics; continuity of design experien-cce. S, F grading.

414 Fundamentals of Digital Systems 3 Prereq E E 214; major or minor in Cpt E, Cpt S or E E. Design and analysis of synchronous se-quential machines; module and bit-slice de-vices; alternative architectures; system-level design; asynchronous sequential machines.

416 [M] Electrical Engineering Design 3 (1-6) Prereq in E E 314, 414. Design and analysis of several specific open-ended projects including design specifi-cations, codes, costs, EIS; written and oral presentations and reports.

417 (418) Numerical Solutions to EM Problems 3 Prereq E E 351. Numerical solutions to EM problems including the moment method; fi-nite element method; finite difference method; numerical integration, and matrix operations. Cooperative course taught by WSU, open to UI students (E E 483).

420 Capstone Engineering Design 3 (1-6) Same as M E 420.


426 Introduction to Electromagnetic Compat-ibility 3 Prereq E E 341, 351. Electromag-netic compatibility requirements and prin-ciples, nonideal component behavior, con ducted and radiated emissions and suscepti-bility, crosstalk, shielding, system design.

431 UHF and Microwave Circuits 3 or 4 (3-3) Prereq E E 351. Lines and waveguides in pas-sive and active circuits; microstrip filter and amplifier design.

434 VLSI Systems I 3 (2-3) Prereq E E 314; 414 or c//; 466 or c//. System, circuits, and physi-cal level design of very large scale integrated circuits using CAD software; project specifi-ca-tion, documentation, and reporting.

441 Digital Control Systems 3 Prereq E E 341, 489. Linear difference equation, Z-transform, discretization, A/D and D/A conversion, sampled data system analysis, frequency domain design, state space design, quantization effects.

442 Robotics 3 Prereq E E 489 or M E 481 or c//. Robots, kinematics, inverse kinematics, Jacob-ians, dynamics, sensors, actuators, position control, force control, hybrid control, trajec-tory generation.

444 [M] VLSI Systems II 1 (0-3) Prereq E E 434. Laboratory experience with digital integrated circuit test design; functional and parametric testing of fabricated student projects.


455 Introduction to Computer Networks 3 Same as Cpt S 455.

464 Digital Signal Processing 3 Prereq E E 341. Discrete and fast Fourier transforms; Z-trans-form; sampling; discrete convolution; digital filter design; effects of quantization.


466 Pulse and Digital Circuits 3 (2-3) Prereq E E 311, 314. Electronic theory and practice used in design of digital computers and other high-speed digital systems.

472 Power Systems Laboratory II 2 (0-6) May be repeated for credit; cumulative maximum 4 hours. Prereq E E 362; c// in E E 486, 491, or 493. Experiments and design projects related to E E 486, 491 and/or 493.

475 Electrical Measurements and Transducers 3 (1-6) Prereq E E 352. Principles of electrical measurements and techniques with indi-vidual transducer design, development and test problem; formal report.

476 Analog Integrated Circuits 3 Prereq E E 311; 351 or c//; 489 or c//; c// in 477 for capstone design credit. Analysis and design of analog integrated circuits in CMOS and BiCMOS technologies; current mirrors, gain stages, operational amplifiers, frequency response, and compensation.

477 [M] Analog Integrated Circuits Laboratory 2 Prereq c// in E E 476. Laboratory applica-tions of E E 476 including the computer-aided design of analog integrated circuits; emphasis on design documentation and reporting.

478 Microelectronic Fabrication 3 Prereq E E 311. Semiconductors, photolithography, dry and wet oxidation, diffusion, thin film de-position, clean rooms, fabrication and testing of diodes and MOS capacitors. Credit not granted for both E E 478 and 578.

480 Electrical Engineering Design Precepts 1 Prereq senior in E E. Electrical engineering design and its extensive aspects as well as for-mative social and ethical relationships. S, F grading.

483 Topics in Electrical and Computer Engineer-ing V 1-3 May be repeated for credit; cumula-tive maximum 3 hours. Current topics in elec-trical engineering and computer engineering.
505 Nonlinear System

507 Random Processes in Engineering

3 Prereq

3 Prereq E E 341, 351, Stat

3 Prereq E E 311, 321.

3 Prereq E E 341, 361. State variable models, system response, stability analysis, root locus analysis and design; frequency-response and state-space analysis and design.

501 Linear System Theory

3 Prereq E E 341. Analysis and equipment fundamentals of power system protection; symmetrical components, fault calculations; fuses; and relays including burden calculations.

509 Protection of Power Systems

1 3 Prereq E E 341, 351, Stat

510 Solid State Direct Energy Conversion

3 Prereq E E 496. Analysis of homojunction and heterojunction solar cells.

511 Protection of Power Systems II

3 Prereq E E 491 or c/l. Protection of electrical equipment as related to electric power systems with emphasis on digital algorithms. Cooperative course taught jointly by WSU and U1 (EE 525).

512 Active Network Synthesis

3 Prereq E E 341. Devices and classical network synthesis, two-port network theory, filters, active filters.

516 Remote Sensing Theory

3 Prereq E E 518. Radiative transfer theory; rough surface scattering; scanning in random media; scattering by random discrete scatterers; the T-matrix method; inverse scattering. Cooperative course taught by WSU, open to U1 students (EE 536).

518 Advanced Electromagnetic Theory 13

Prereq E E 351. Electromagnetic waves, electromagnetic theorems and concepts, solutions to the wave equation in rectangular, cylindrical and spherical coordinates. Cooperative course taught by WSU, open to U1 students (EE 530).

519 Advanced Electromagnetic Theory II

3 Prereq E E 518. Exact solutions to canonical electromagnetic scattering problems, high and low frequency limits, foundations of numerical solutions to electromagnetic scattering problems. Cooperative course taught by WSU, open to U1 (EE 531).

520 Plasma Engineering

3 Prereq E E 351 or Phys 342. Electromagnetics, kinetic theory, and fluid mechanics of plasmas in space, arcs, plasma processing, coronas, and fusion reactors.

521 Analysis of the Power Systems

3 Prereq E E 491. Concepts and practices of modern power engineering, including steady-state and dynamic analysis, economics and control design.

522 High Voltage Engineering

3 Prereq E E 331. High voltage-high power phenomena; design and measurements associated with electrical transmission, current interruption, insulation, transformation, lightning, and corona.

524 Advanced Digital System Architecture

3 Prereq E E 424. Parallel and distributed processors; multiprocessors; interconnection topologies; language directed architecture; special purpose architecture.

527 Antenna Theory and Design

3 Prereq E E 351. Antenna fundamentals, analytical techniques, characteristics and design procedures for selected types of wire, broadband, and aperture antennas. Cooperative course taught jointly by WSU and U1 (EE 533).

528 Advanced Topics in Electromagnetics

3 May be repeated for credit; cumulative maximum 6 hours. Prereq E E 351. Advanced topics of current interest in wave propagation (electromagnetics, acoustics, or optics).

530 Multirate Signal Processing

3 Prereq E E 341, 464. Fundamentals of sampling rate conversion, exact reconstruction filter banks, and multidimensional multirate systems.

531 Energy Management and Planning

3 Available energy resources; energy issues, economic analysis of energy alternatives; energy future.

534 High Performance Computing

3 Prereq E E 414. Development, current state and future of high speed computing; application of existing commercial systems and computer engineering problems. Cooperative course taught by U1 (EE 504), open to WSU students.

541 Digital Control Systems II

3 Prereq E E 441. State space approach, SISO, optimal control, State estimators, stochastic systems, State estimation in the presence of noise.

543 Signal Theory

3 Prereq E E 341. Theory of signals; signal spaces; basis sets; signal representations; projection theorem; Fourier transform; optimum signal design.

544 Neural Computation

3 Same as Cpt S 544.

545 Data Compression

3 Prereq E E 507, 543. Source coding with a fidelity criterion; quantization theory; predictive, transform and subband coding; noiseless source codes.

548 Information Theory and Channel Coding

3 Prereq E E 451, 507. Information theory: entropy, mutual information, source and channel coding theorems, channel capacity, Gaussian channels; channel coding: block and convolutional codes.

551 Data Communication Systems

3 Prereq E E 341, 507. Digital communications; multi-amplitude/phase signal constellations; probability of error performance; cutoff rate; Viterbi algorithm; trellis coded modulation.

555 Computer Communication Networks

3 Prereq Stat 443. Packet switching networks; multi-access and local-area networks; delay models in data networks; routing and flow control.

562 Fault Tolerant Computer Systems

3 Same as Cpt S 562.

564 Advanced Signal Processing

3 Prereq Stat 443. Signal processing and communication theory aspects of frequency domain analysis of continuous and discrete random signals.

578 Microelectronic Fabrication

Graduate-level counterpart of E E 478; additional requirements. Credit not granted for both E E 478 and 578.

581 Advanced Topics in Power Systems

3 May be repeated for credit; cumulative maximum 6 hours. Prereq E E 521. Power system operations including AGC, economic dispatch and security; power system dynamics; intelligent systems applications. Cooperative course taught jointly by WSU and U1 (EE504).

582 Advanced Topics

V 1-3 May be repeated for credit.

584 Parallel Processing: Systems and Applications

3 Same as Cpt S 584.

586 VLSI Systems Design

3 Prereq E E 444. VLSI models, layout algorithms, design methodologies, simulation and layout tools, algorithm design for VLSI implementation.

595 Directed Study in Electrical Engineering

V 1-3 May be repeated for credit. Current topics in electrical engineering.

596 Advanced Analog Integrated Circuits

3 Prereq E E 476, 477. MOS and BiCMOS technologies; MOS and BiCMOS operational amplifiers; A/D, D/A converters; switched-capacitor filters; display devices; fiber optics. Cooperative course taught by WSU, open to UI students (EE 515)
597 Semiconductor Device Modeling 3 Electron transport in semiconductors; scattering processes, Monte-Carlo technique, numerical techniques for solving Poisson and continuity equations for device modeling.

598 High Speed Semiconductor Devices 3 Prereq E E 496. Transit-time effects, negative resistance devices; ballistic transport in high electronic fields; GUNN effect devices; resonant tunneling, IMPATTs, HEMTs, and HBTs.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Computer Skills and Literacy Courses

Cpt S

105 Computer Literacy and Applications 4 Computer competency for a general audience; PC components, operating systems (Windows), and applications (MS Office Pro., email, Web Browsers).

110 Computer Science Overview 3 Prereq Math 107 or c/. Central concepts of computer science; algorithms, computability, complexity, artificial intelligence in the context of current computational devices and software.

153 BASIC Programming 2 Comprehensive programming practice using BASIC.

203 FORTRAN Programming 2 Prereq Math 171 or c/. Comprehensive programming practice using FORTRAN.

205 Introduction to Computing for Architecture 3 Prereq certification in Arch or Cst M. Computer literacy for architecture students; application software, system software and hardware emphasizing the technology required for graphics intensive applications.

207 Introduction to the Internet 3 Prereq Cpt S 105 or 150. Skills and strategies for utilization of the resources of the Internet.

241 COBOL Programming 2 Prereq Math 107 or c/. Comprehensive programming practice using COBOL.

251 C Programming Language 2 Prereq Math 171 or c/. Comprehensive programming practice using C.


253 Java Programming Language 3 Prereq Cpt S 150, 153, 203, or 251. Comprehensive programming practice using Java.

302 Unix System Administration 3 (2-3) Prereq Cpt S 150. Functions and responsibilities of Unix system administrators; disks, networking, accounting and policy.

306 Programming for Engineers I 3 Prereq Math 220, 273, 315. Problem-solving methods, software development principles structured programming with engineering applications.

307 Programming for Engineers II 3 Prereq Cpt S 306. Continuation of Cpt S 306; advanced programming topics and data structures with engineering applications.

401 [S] Computers and Society 3 Prereq Cpt S 105, 150, 153, 203, 241, or 251; Phil 260 or Soc 101; completion of one Tier I and three Tier II courses in appropriate area of coherence. Ethical and societal issues related to computers and computer networks; computers as enabling technology; computer crime, software theft, privacy, viruses, worms.

405 The Use of Computer Systems 3 Prereq junior standing. For nonmajors. Computers, computer systems, and software packages for advanced students in other disciplines; hands-on use. No previous computer experience required.

Computer Science Courses

Cpt S

150 Program Design and Development 4 (3-3) Prereq Math 107. Formulation of problems and top-down design of programs in a modern structured language for their solution on a digital computer.

250 Data Structures 4 (3-3) Prereq Cpt S 150. Advanced programming techniques; object-oriented programming, data structures and program design principles.

317 Automata and Formal Languages 3 Prereq Math 216. Finite automata, regular sets, pushdown automata, context-free language, Turing machines and the halting problem.

350 Numerical Computing 3 Prereq Cpt S 150, 203, or 251; c/f in Math 315. Power and limitation of numerical solutions; design, analysis and implementation of numerical algorithms; visualization and rendering.

350 Software Design 3 Prereq Cpt S 250, Math 216. Software design techniques; data-flow oriented design, object-oriented and data-oriented design; testing and maintenance of software.

355 Programming Language Design 3 Prereq Cpt S 350; Math 216. Design concepts of high-level programming languages; survey of existing languages, experience using some languages.

360 [M] Systems Programming 4 (3-3) Prereq Cpt S 250; E E 314. Implementation of systems programs, concepts of computer operating systems; laboratory experience in using operating system facilities.

370 Systems Analysis and Design 3 Prereq Cpt S 150 or 241. Analysis and design of computer-based systems typically found in a business environment; related programming projects.

380 Preparation for Professional Practice 1 Same as E E 380.

422 [M] Software Engineering Principles 3 Prereq Cpt S 350. Introduction to large-scale software development; requirement analysis, estimation, design, verification techniques.

423 Software Engineering Laboratory 3 (1-6) Prereq Cpt S 422. Laboratory/group design project for large-scale software development, requirements analysis, estimation, design, verification techniques.

425 Network Security 3 Prereq Cpt S 360. Practical topics in network security; policy and mechanism; intrusion, detection, prevention, response, cryptography. Cooperative course taught by UI (CS 425), open to WSU students.

426 Mobile Computing 3 Prereq Cpt S 355. Hands-on experience with mobile device computing, mobile platforms, mobile programming; persistent object stores, wireless communication.

430 Numerical Analysis 3 Same as Math 448.

431 Numerical Linear Algebra 3 Same as Math 449.

434 (444) Neural Network Design and Application 3 Prereq Stat 360, computer programming skills. Hands-on experience with neural network modeling of nonlinear phenomena; application to classification, forecasting, identification and control.

440 Introduction to Artificial Intelligence 3 Prereq Cpt S 355. Basic issues of knowledge representation and automated problem solving; introduction to the theory and application of expert systems technology.


442 Computer Graphics 3 Prereq Cpt S 350; Math 220. Raster operations; transformations and viewing; geometric modeling; visibility and shading; color. Cooperative course taught by WSU, open to UI students (CS 404).

443 Computer-Human Interaction 3 Prereq Cpt S 350. Topics in computer-human interaction; screen based paradigms and Fitt’s law; audio and haptic interfaces, virtual reality.

451 Introduction to Database Systems 3 Prereq Cpt S 404. Introduction to database concepts, data models, database languages, database design, implementation issues.

455 Operating Systems 3 (2-3) Prereq Math 350. Introduction to computer operating systems; related programming projects.

460 Operating Systems and Computer Architecture 3 Prereq Cpt S 360. Operating systems, computer architectures, and their interrelationships in micro, mini, and large computer systems.

461 Embedded Systems 3 Prereq Cpt S 360. The design and development of real-time and dedicated software systems with an introduction to sensors and actuators. Cooperative course taught by WSU, open to UI students (CS 404).

465 Microcomputer Systems 3 (2-3) Prereq Cpt S 360; E E 214. Design and implementation of a microcomputer system including the system hardware and firmware (BIOS).
Program in Engineering Management

Program Director, J. A. Ringo.

Engineering management is a graduate program designed to help technical professionals become effective managers. The program is administered by the College of Engineering and Architecture.

Management training is integrated with upgraded technical skills to meet industry needs for the management of technology and the management of technical professionals. While MBA programs encompass the entire business spectrum, engineering management focuses on the management of those activities that have a high technological content. This interdisciplinary master’s degree is offered to the Boeing Company in the Puget Sound area, at WSU Spokane, WSU Tri-Cities, and WSU Vancouver. Classes in the program are offered at times convenient for the working engineer. Engineering management students are engineers who bring a significant amount of experience with them into the academic arena from a variety of engineering and management backgrounds.

Program Requirements

The master’s program with a nonthesis option consists of 32 credit hours including a minimum of 30 credit hours of approved graded course work and a minimum of 2 credit hours of Master’s Special Problems. The program of studies leads to a Master of Engineering Management degree. An overview of the engineering management curriculum can be summarized as follows:

<table>
<thead>
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<th>Core Courses</th>
<th>Hours</th>
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<td>Acctg 534</td>
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<tr>
<th>Electives</th>
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<td>12 semester hours of course work may be taken as electives within the following framework:</td>
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<th>Engineering/Engineering Management electives (technical electives in discipline): 6-12 hours. Management electives (courses in marketing, production, finance, law, computers or communications): 0-6 hours.</th>
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Admission Requirements

Students who apply to the Master of Engineering Management degree program will have earned a Bachelor of Science in Engineering from an accredited program with a minimum g.p.a. of 3.0. Working engineers with undergraduate degrees in other fields, particularly mathematics, physics, or other physical sciences, may be accepted for this program; requirements for additional undergraduate work in engineering (nonengineering majors) are evaluated on an individual basis. Prospective students must score above 500 on the Graduate Management Admission Test (GMAT), provide three letters of recommendation, a resume showing significant engineering experience, and a brief personal statement outlining the appropriateness of the program in light of career goals and work history.

E M CORE COURSE LONG-TERM SCHEDULE

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<tr>
<th>Fall Semester</th>
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<tr>
<td>E M 501</td>
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</table>
Overview of the topics covered in the program:

- **Basic Statistics**
- **Project Management**
- **Manufacturing and Operation Design and Manufacturing**
- **Financial Management for Engineers**
- **Engineering Management**

Electives: summers and alternate years.

**Description of Courses**

**Engineering Management**

- **E M 501 Management of Organizations**
- **E M 505 Financial Management for Engineers**
- **E M 517 Simulation Modeling of Engineering Systems**
- **E M 526 Constraints Management**
- **E M 540 Operations Research for Managers**
- **E M 545 Decision Analysis for Engineering**
- **E M 550 Manufacturing and Operation Design and Strategy**
- **E M 560 Project Management**
- **E M 575 Performance Management in Technical Organizations**
- **E M 580 Quality Control and Reliability Design**

**Department of English**


The major in English provides students with a broad knowledge of literature, while at the same time emphasizing the writing and analytical skills that are vital to success in the university, in professional and graduate school, and in the workplace. The program of study is flexible and allows English majors both to pursue electives, minors, and second majors in other departments and to shape their academic careers in line with professional and personal interests. The curriculum is designed for (1) students who desire a broad education emphasizing language and literature, (2) students who wish to teach or to prepare for graduate studies in English, and (3) students who intend to use the background and skills learned in the major as a foundation for careers in law or business. The curriculum provides majors the opportunity to complete their studies with a small discussion seminar in their area of emphasis.

Students who are preparing to teach English in the public schools of Washington should consult the requirements listed under Program in American Studies. Students interested in interdisciplinary degrees in areas such as linguistics and classical studies should consult the requirements within the Program in General Studies.

**Degree Program Requirements**

As part of their graduation requirements in the College of Liberal Arts, all majors are required to take either Hum 101 or 103 and one of the following: Hum 202, 303, 304.

Five programs are offered for the English major, all leading to the degree of Bachelor of Arts in English. Option I is the traditional English major designed for students preparing for graduate study in English and related fields. Option II is for students who desire a general liberal arts education emphasizing language and literature; it is often selected by students with double majors, and those coming to the major late in their university careers. Option III is for students who need specific training in the teaching of language and literature; it is a program for English-education majors coordinated with the Department of Teaching and Learning. Option IV is for English majors planning to enter law school; it emphasizes analytical and verbal skills and breadth requirements in areas identified as requisite to success in the profession by law schools and the Law School Admission Council. Option V is for English majors planning for a career in business; it emphasizes analytical and communication skills, and a broad liberal arts background, while providing the core of business and computer science courses required for most business careers.

Some 300–400-level courses offered only on alternate semesters; please check time schedule when planning these suggested sequences.

**FIRST SEMESTER REQUIREMENTS**

The first semester requirements are common to all English degree programs:

**Freshman Year**

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<th>Course</th>
<th>Hours</th>
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<td>Hum 101 [H] or 103 [H] (GER)</td>
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<td>Eng 101 [W] (GER)</td>
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<td>GenEd 110 [AJ] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Science Elective (GER)</td>
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<td>Tier I Science [Q] (GER)</td>
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**STANDARD DEGREE PROGRAM**

**120 HOURS**

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<th>Course</th>
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**TEACHING DEGREE PROGRAM (120 HOURS)**

**Freshman Year**

**Second Semester**

- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)
- Biological Sciences [B] (GER)
- Engl 209 or 210
- GenEd 111 [A] (GER)
- Social Sciences [S,K] (GER)

**Sophomore Year**

**First Semester**

- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)
- Biological Sciences [B] (GER)
- Engl 209 or 210
- Engl 366 or 368
- Hum 202 [H], 303 [H], or 304 [H] (GER)
- Physical Sciences [P] (GER)

**Junior Year**

**First Semester**

- English 300
- English 323
- English 380, 381, or 382
- Genre Elective
- One from: 383, 384, 385, 386, 387, 388, or 389
- Complete Writing Portfolio
Department of English

Second Semester Hours
Engl 383, 384, 385, or 386 3
Engl 387, 388, or 389 3
Pol S Elective 3
Electives 6

Senior Year
First Semester Hours
Engl 308 [M] 3
Engl 402 [W], 492 [M], 493 [M], or 494 [M] 3
Electives 9

Second Semester Hours
Tier III Capstone (GER) 3
Electives 12

1 or one from the period course group: Engl 380-389, the genre group: Engl 332, 333, 334, 339, 366, 368, 419, or the writers of color/women writers group: Engl 309, 311, 312, 321, 322, 341, 345, 346. 3 Strongly recommended.

BUSINESS ENGLISH DEGREE PROGRAM (121 HOURS)

Requirements in this option include a core of 30 credit hours in English; to complete the liberal arts foundation for the major, 6 hours in history, Phil 260, and 3 hours in political science must be included. To this foundation, students add 21 hours in business core courses and a computer science course to create a program requisite for beginning a career in business.

Freshman Year
Second Semester Hours
Biological Sciences [B] (GER) 4
Engl 209 or 210 3
GenEd 111 [A] (GER) 3
Hist Elective [H] (GER) 3
Pol S Elective 3

Sophomore Year
First Semester Hours
Econ 101 [S] (GER) or 201 3
Engl 209 or 210 3
Engl 366 or 368 3
Hum 202 [H], 303 [H], or 304 [H] (GER) 3
Physical Sciences [P] (GER) 4

Second Semester Hours
Acctg 230 3
Cpt S 105 4
Econ 102 [S] (GER) 3
Engl 302 [W] [M] (GER) 3
Engl 305 [H] or 306 [H] (GER) 3

Junior Year
First Semester Hours
B Law 210 3
Econ 320 3
Engl 308 [H] [M] (GER) 3
Engl 380, 381, or 382 3
Hist Elective [H] (GER) 3
Complete Writing Portfolio

Second Semester Hours
Engl 387, 388, 389 3
Intercultural [I,G,K] (GER) 3
Mgt 301 3
Phil 260 [H] (GER) 3
Elective 3
Senior Year
First Semester Hours
Engl 383, 384, 385, or 386 3
Engl 492 [M], 493 [M], or 494 [M] 3
Grammar/Linguistics Elective 3
Mktg 360 3
Elective 3
Second Semester Hours
Engl 402 [M] [W] (GER) 3
Tier III Capstone (GER) 3
Elective 6

English Minor
The student must complete a minimum of 16 hours in English courses (excluding 101 and 198), half of which must be 300-400-level. The 16 hours must also include one composition course beyond Engl 101. Engl 209 and 210 are strongly recommended.

Professional Writing Minor
The student must complete 16 hours in the following writing or writing-related courses: Engl 255, 300; Engl 256 or 354 or 458; 301 or 302; 402/403; 405 or 498.

Canadian Studies Minor
The minor in Canadian studies is offered jointly by WSU and the University of Idaho. A student must complete a minimum of 16 hours including Fren 101, 102 plus 13-21 hours from the following list: Anth 428; Com 315, Engl 315, Hist 312, 314, 406, 424, 425, 426, Pol S 380. Students interested in pursuing this minor should contact the department.

Preparation for Graduate Study
Students interested in a graduate program in English at Washington State University should offer preparation in English courses generally approximating the major, 6 hours in history, Phil 260, and 3 hours in political science must be included. Students with undergraduate majors in such fields as philosophy, foreign languages, and history may also be accepted for graduate study in the department. Every student should be well grounded in at least one modern foreign language.

Description of Courses

English
Engl 100 Basic Writing 3 Prereq placement exam. Designed to improve the student’s writing ability to a level appropriate for entrance into Engl 101.

English Major
The student must complete a minimum of 16 hours in English courses (excluding 101 and 198), half of which must be 300-400-level. The 16 hours must also include one composition course beyond Engl 101. Engl 209 and 210 are strongly recommended.

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300 Computers in English 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Use of computers in the writing process and in the analysis of literature. S, F grading.


305 [H] Shakespeare 3 Shakespearean drama to 1600.

306 [H] Shakespeare 3 Shakespearean drama after 1600.

308 [H] [M] Introduction to Literary Criticism 3 Introduction to the systematic study of critical and theoretical approaches to literature; emphasis on problems of interpretation.

309 [H] Women Writers 3 Women’s artistic and intellectual contributions to prose, fiction, drama, and poetry.

311 [G] Asian/Pacific American Literatures 3 Same as CAC 314.

314 (312) [M] Topics in Asian/Pacific American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Same as CAC 314.

315 Topics in Canadian Studies 1 Same as Hist 315.

321 [G] Introduction to African American Literature 3 Same as CAC 331.

322 [M] Topics in African American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Trends and major writers.

323 Approaches to the Teaching of English Literature and language arts in secondary schools.


325 [M] Topics in Poetry 3 May be repeated for credit; cumulative maximum 6 hours. Forms, history, development of poetry; the epic, the lyric, verse satire, dramatic monologue, modernist verse.

333 [M] Topics in Fiction 3 May be repeated for credit; cumulative maximum 6 hours. Forms, history, development of narrative fiction: the tale, short story, Continental and experimental novel.

334 [M] Topics in Drama 3 May be repeated for credit; cumulative maximum 6 hours. Forms, history, development of drama: comedy, tragedy, Medieval religious drama, theatre of the absurd.

335 [H] The Bible as Literature 3 Historical and literary approach to texts of the Jewish and Christian scriptures; emphasis on history, interpretation, and influence.

338 [M] Topics: Major Trends and Figures 3 May be repeated for credit; cumulative maximum 6 hours. Literary trends or major writers.

339 Topics in Film as Literature 3 May be repeated for credit; cumulative maximum 6 hours. Analytical study of film as major literary genre.

341 [G] [M] Native American Literature 3 Same as CAC 373.

345 [G] [M] Introduction to Chicano/Chicana Literature 3 Same as CAC 353.

346 Vanguard Poetics in Chicano/Latino Writers 3 Same as CAC 354.

351 Creative Writing: Prose 3 Prereq Engl 101. Writing the short story; practice and theory.

352 Creative Writing: Poetry 3 Prereq Engl 101. Workshop approach to poetry writing.

354 History of the English Language 3 Prereq one year for L. Language related to the origin, history, and literature of its speakers.

366 [H] The English Novel to 1900 3 Classic English novels in cultural perspective by such authors as Defoe, Fielding, Austen, the Brontës, Thackeray, Dickens, George Eliot, Hardy.

368 [H] The American Novel to 1900 3 Classic American novels in cultural perspective by such authors as Cooper, Hawthorne, Melville, Stowe, Twain, James, Jewett, Chopin, Crane, Dreiser.

380 American Literature to 1855 3 Prereq Engl 209, 210, or substitutions approved by advisor. American writing from Settlement and Revolution through the times of Irving, Poe, Emerson, Hawthorne, Fuller, Thoreau, and Melville.

381 American Literature 1855-1916 3 Prereq Engl 209, 210, or substitutions approved by advisor. American writing in an era of expansion, social and literary ferment: Whitman, Dickinson, Frost, the literature of realism and naturalism.

382 Modern American Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Major literary movements and alternate voices in American poetry, fiction, and drama from WW I to the present.

383 Chaucer and Medieval Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Chaucer’s Canterbury Tales in the context of Medieval culture and literary tradition.

384 English Literature of the 16th Century 3 Prereq Engl 209, 210, or substitutions approved by advisor. Renaissance literature, including More, Wyatt, Sidney, Spenser, Raleigh, and Shakespeare, in age of Humanism and Reformation.

385 Milton and English Literature of the 17th Century 3 Prereq Engl 209, 210, or substitutions approved by advisor. Major literary figures of the period: Milton, Marvell, Donne, and Milton’s influence on later literature.

386 English Literature of the Restoration and 18th Century 3 Prereq Engl 209, 210, or substitutions approved by advisor. Neo-classical literature from 1660 to the Romantic era: Dryden, Swift, Pope, Johnson, Gray, Goldsmith, Burns, and others.

387 English Romantic Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Major works by Blake, Wordsworth, Coleridge, Byron, Shelley, Keats, and others during Romantic literature, especially 1798-1832.

388 Victorian Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Major works by Tennyson, Dickens, Browning, Swinburne, Wilde, and others in a dynamic age of change in Britain, 1832-1901.

389 Modern British Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Fiction, drama, poetry in age of conflict, artistic experimentation: Joyce, Woolf, Lawrence, Murdoch, Shaw, Pinter, Yeats, Eliot, Auden, and others.

391 Topics—Study Abroad 3

392 Topics—Study Abroad 3

394 Topics—Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.

401 History of Rhetoric 3 Survey of influential theories of rhetoric, ancient to modern.

402 [W] [M] Technical and Professional Writing 3 Prereq Engl 101, junior standing. Research writing: defining, proposing, reporting progress; presenting a final product; other professional writing needs. Credit not granted for both Engl 402 and 403.


405 Advanced Professional Writing and Editing 3 Prereq Engl 402 or by interview. Professional writing and editing; textual alterations, design, and layout, including internship experience.

409 [H] Women Writers in the American West 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. Study of tragedy and comedy in the Age of Shakespeare.

419 [H] The Twentieth Century Novel 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. The novel in English in the literary and cultural context of the modern age.

443 Problems in English Linguistics: Syntax and Phonology 3 May be repeated for credit; cumulative maximum 6 hours. Technical introductions to generative analysis of sentences and to sound systems of human languages. Credit not granted for both Engl 443 and 543.

451 Advanced Creative Writing: Prose 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Engl 351 or consent of instructor.

452 Advanced Creative Writing: Poetry 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Engl 352 or consent of instructor.

459 Writing the novel.

472 [T] Ecological Issues and American Nature Writing 3 Same as Am St 472.

492 [M] Advanced Topics in Literature, Criticism, and Theory 3 Prereq senior in English. Not open to graduate students. Seminar with term paper project; focused studies in literature and critical theory.

493 [M] Advanced Topics in English Literature 3 Prereq senior in English. Not open to graduate students. Seminar with term paper project; focused studies in English literature.
494 [M] Advanced Topics in American Literature
3 Prereq senior in English. Not open to graduate students. Seminar with term paper project; focused studies in American literature.

495 [M] Advanced Topics in English for Teachers
3 Prereq senior in English/teaching option. Not open to graduate students. Seminar with term paper project; literature, composition theory, pedagogy.

496 Topics in American Studies
3 May be repeated for credit; cumulative maximum 9 hours. American Studies Summer Institute. Credit not granted for both Engl 496 and 596.

498 Internship
V 1-15 May be repeated for credit; cumulative maximum 15 hours. Prereq junior in Engl. Off-campus cooperative education learning experience in business or industry in English-related jobs. S, F grading.

499 Special Problems
V 1-4 May be repeated for credit. S, F grading.

501 Seminar in the Teaching of Writing: Methodology of Composition
3 Development of a workable definition of the methods of composing through a review of relevant research and problem-solving exercises.

502 Seminar in the Teaching of Writing: Contemporary Theories
3 Seminar with term paper project; literature, composition theory, pedagogy.

503 Old English: Anglo-Saxon
3 Old English language and its literature with emphasis on short lyrics and prose.

504 Old English: Beowulf
3 Prereq Engl 503. Advanced study of Old English language and literature with focus on the epic Beowulf.

506 Seminar in 16th Century English Literature
3 May be repeated for credit; cumulative maximum 6 hours.

507 Shakespeare
3 Plays, poems, criticism, and background materials.

508 Seminar in Assessment of Writing
3 Problems involved in the diagnosis and assessment of student writing.

509 Seminar in Classical Rhetoric and its Influences
3 Study of Greek and Roman rhetorical theories and their influences.

510 Backgrounds of American Literature
3 Seminar in American writing in cultural contexts.

511 Seminar in 17th and 18th Century American Literature
3

512 Introduction to Graduate Study
3

513 Theory and Method in American Studies
3 Major theories and methods currently used by American Studies scholars; key concepts in cultural analysis.

514 Seminar in 20th Century American Literature
3 May be repeated for credit; cumulative maximum 6 hours.

515 Seminar in Victorian Literature
3 May be repeated for credit; cumulative maximum 6 hours.

516 Seminar in English Literature of the 17th Century
3 May be repeated for credit; cumulative maximum 6 hours.

517 Seminar in English Literature of the Restoration and 18th Century
3 May be repeated for credit; cumulative maximum 6 hours.

518 Seminar in 19th Century American Literature
3 May be repeated for credit; cumulative maximum 6 hours.

519 Administering a Writing Lab
3 Prereq Engl 501 or 502 or consent of Writing Lab Director. Combining theory and practice in writing lab supervision and management. Interns will work under direct faculty supervision.

521 Teaching Writing to Nontraditional Students
3 Prereq Engl 501, 502, or by interview only. Theory and practice of the teaching of basic writers.

522 Theories and Methods of the Teaching of Technical and Professional Writing
3 Historical and theoretical bases for production of scientific discourse; training in its practical applications.

523 Seminar in English Literature
3 May be repeated for credit; cumulative maximum 12 hours. Major topics and figures.

524 Seminar in TESOL and Linguistics
3 May be repeated for credit; cumulative maximum 6 hours. Cooperative course taught by UI (Eng 510), open to WSU students.

525 Problems in English Linguistics: Syntax and Phonology
3 May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of Eng 443; additional requirements. Credit not granted for both Engl 443 and 543. Cooperative course taught jointly by WSU and UI (Eng 543).

526 TESOL: Theory and Methods
3 May be repeated for credit; cumulative maximum 6 hours. Theoretical issues and practical experience in ESL classroom situations. Cooperative course taught by WSU; open to UI students (Eng 510).

527 Literary Criticism
3 Theories of literature from Plato and Aristotle to the present.

528 Seminar in Literary Theory
3 May be repeated for credit; cumulative maximum 6 hours. Problems in the theory and practice of literary criticism.

529 Seminar in 20th Century British Literature
3 May be repeated for credit; cumulative maximum 6 hours.

530 Seminar in Poetry or Non-fiction Prose
3 May be repeated for credit; cumulative maximum 6 hours. Historical and generic studies in poetry and non-fiction prose.

531 Language Arts: Theories of Composition
3 Contemporary theories of composition and their application to the language arts classroom.

532 Topics in English
3 May be repeated for credit; cumulative maximum 6 hours. Language, English pedagogy, or literature of special or current interest; reading theories, teaching of writing, current literary theories.

533 Topics in American Studies
3 May be repeated for credit; cumulative maximum 9 hours. Graduate-level counterpart of Engl 496; additional requirements. Credit not granted for both Engl 496 and 596.

534 Topics in Composition and Rhetoric
3 May be repeated for credit; cumulative maximum 6 hours. Rhetoric and composition theory and praxis.

535 Teaching Apprenticeship
1 May be repeated for credit. S, F grading.

600 Special Projects or Independent Study
3 Credit not granted for both Engl 496 and 596.

601 Seminar in the Teaching of Writing: Methodology of Composition
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634 Topics in Composition and Rhetoric
3 May be repeated for credit; cumulative maximum 6 hours. Rhetoric and composition theory and praxis.

635 Teaching Apprenticeship
1 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination
3 Credit not granted for both Engl 496 and 596.

702 Master’s Special Problems, Directed Study, and/or Examination
3 Credit not granted for both Engl 496 and 596.

800 Doctoral Research, Dissertation, and/or Examination
3 Credit not granted for both Engl 496 and 596.

Department of Entomology

Professor and Chair, J. J. Brown; Professor, A. A. Berryman; Associate Professors, G. E. Long, G. L. Piper, W. S. Sheppard, W. J. Turner; Assistant Professors, C. A. Sheppard, R. S. Zuck.

The entomology curriculum provides the opportunity to study the basic and applied aspects of entomology. Insects and other related arthropods are the dominant consumers in all terrestrial ecosystems. There are far more kinds of insects than all other creatures combined. They compete at all levels with humans in the production, processing and use of food and fiber resources. They are a major health threat to most of the world’s people. In-depth knowledge in basic areas of insect identification, morphology, physiology, behavior and ecology are prerequisites to developing and applying control measures against our arthropod competitors. Ecological and legal restrictions on pesticide usage require people knowledgeable in the safe use of pesticides and in the effect of such use on the environment.

The entomology curriculum provides the opportunity to study the basic and applied aspects of entomology. Courses are designed for majors and nonmajors, providing needed training for students in agriculture, education, veterinary medicine, microbiology, public health, environmental sciences, and natural sciences.

The curriculum prepares students for graduate study in entomology or for employment in institutional or private pest control oriented areas. An interdisciplinary curriculum in integrated pest management (IPM) is available to students with interests that span entomology and pest management.

Facilities are available for graduate study in the major areas of entomology: apiculture behavior, integrated biological control and sustainable pest management, ecology, forest entomology, insect-plant relationships, medical/veterinary entomology, population genetics, physiology, systematics, and environmental toxicology. Departmental faculty at
outlying research centers also serve as advisors for graduate student research and sometimes teach over WHETS. Extensive insect collections, insectary, quarantine, computer and video facilities support teaching, extension, and research. The department is committed to developing an integrated biological control approaches to pest management. This commitment is reflected in the broad involvement of the faculty and evolving curricula in biocontrol. The department offers courses of study leading to the degrees of Bachelor of Science in Entomology, Master of Science in Entomology, and Doctor of Philosophy (Entomology). Additional information can be obtained on the World Wide Web at: http://coopext.cahe.wsu.edu/~entom/.

### Degree Program Requirements

At least 40 of the total hours required for the bachelor’s degree in this curriculum must be in 300-400-level courses.

Students planning to become pest control consultants or pest management specialists should include the following courses: Ag Ec 201, CropS 305; IPM 201, 452, 462; Pl P 429; SoilS 201; Stat 310 or 412 and crops courses in CropS and Hort.

#### ENTOMOLOGY DEGREE PROGRAM (120 HOURS) ✔FYDA

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
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<tr>
<td>Bio S 103 [B] (GER)</td>
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</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W], 201 [W] or 301 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Chem 102 [P] or 106 [P] (GER)</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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**Sophomore Year**

<table>
<thead>
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<th>First Semester</th>
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<tr>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Entom/IPM Elective 2 or 3</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<tbody>
<tr>
<td>Bio S 372</td>
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</tr>
<tr>
<td>Chem 240 or 340</td>
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</tr>
<tr>
<td>GenCB 301</td>
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**Junior Year**

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<tr>
<th>First Semester</th>
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<tr>
<td>Bot 320, Zool 352, or 353</td>
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<td>Entom 343, 344</td>
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<td>Math 140 [N] or 205 [N] (GER)</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K]</td>
<td>3</td>
</tr>
<tr>
<td>Bot 120, 320, or 332</td>
<td>2 or 3</td>
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<tr>
<td>Entom 459 or 440 [M]</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
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**Senior Year**

<table>
<thead>
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<tr>
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<td>Tier III Capstone (GER)</td>
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<td>Electives</td>
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</table>

#### Entomology Minor

A minimum of 16 hours is required for the minor and must include Entom 343, 439, or 440 and 9 hours from: Entom 348, 443, 448, 449, 450, 462; IPM 201, 452, 462.

#### Preparation for Graduate Study

As preparation for work toward an advanced degree in entomology, a student should have completed an undergraduate major in some field of biological science, chemistry, forestry or agriculture. Background work should include courses in general biology, organic chemistry, genetics, ecology, entomology, plant science, physical science, and zoology.

#### INTEGRATED PEST MANAGEMENT

The integrated pest management major is a multidisciplinary course of study sponsored by the Departments of Crop and Soil Sciences, Entomology, Horticulture and Landscape Architecture, and Plant Pathology. Students acquire a holistic perspective and ecological understanding of the philosophy, principles, and practices of pest management and are trained to become professional crop protection specialists. Students in this major have the option of obtaining a general background in pest management or specializing in one or both of the areas of entomology and weed science within pest management. All students also participate in a summer internship program whereby they have the opportunity to gain work experience through supervised off-campus employment with pest management individuals or organizations.

All students are required to complete a minimum of 120 semester hours of course work, including the internship, to earn the Bachelor of Science degree in Agriculture with a minor in IPM. At least 40 of the total hours required must be in 300-400-level courses.

### FIRST AND SECOND YEAR REQUIREMENTS

The requirements for the first two years are common to both integrated pest management degree programs:

#### Freshman Year

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<td>Ag Ec 201 [S] or Econ 102 [S] (GER)</td>
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<tr>
<td>IPM 201</td>
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<td>Electives</td>
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### WEED SCIENCE OPTION DEGREE PROGRAM (132 HOURS) ✔FYDA

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<th>First Semester</th>
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<tr>
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<td>Bio S 104 [B] or Bot 120 [B] (GER)</td>
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<td>Chem 102 [P] or 106 [P] (GER)</td>
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<td>Math 140 [N] or Stat 212 [N] (GER)</td>
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<tr>
<td>Psych 105 [S] (GER)</td>
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### ENTOMOLOGY OPTION DEGREE PROGRAM (130 HOURS) ✔FYDA

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<table>
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<th>First Semester</th>
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<td>Bio S 372</td>
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<td>Bot 332</td>
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<td>Entom 343, 344</td>
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<tr>
<td>IPM 452</td>
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<td>Elective/Option Course [M]</td>
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<tr>
<td>IPM 452</td>
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<td>Elective/Option Courses</td>
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#### Senior Year

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<tbody>
<tr>
<td>Entom 343, 344</td>
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<tr>
<td>IPM 452</td>
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<tr>
<td>Elective/Option Course [M]</td>
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| Year 3, Summer Session: IPM 399 | 3 |

#### WEED SCIENCE OPTION DEGREE PROGRAM (132 HOURS) ✔FYDA

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<table>
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<td>Entom 343, 344</td>
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<td>IPM 452</td>
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<td>Elective/Option Courses</td>
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### Senior Year

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<td>Elective/Option Course [M]</td>
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<tr>
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| Year 3, Summer Session: IPM 399 | 3 |
**Description of Courses**

**Entomology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>Entom 101</td>
<td>[B] Insects and People: A Perspective 3</td>
<td>The world’s most abundant animals and their extensive effects on people yesterday and today.</td>
<td></td>
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<tr>
<td>344</td>
<td>General Entomology Laboratory 2 (0-6)</td>
<td>Prereq Bio S 103, 104; Entom 343 or c/f. Identification and taxonomy of insects and related arthropods; insect collection and field work required.</td>
<td></td>
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<tr>
<td>348</td>
<td>Forest Entomology 2 (1-3) Same as NATRS 348.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>361</td>
<td>Honey Bee Biology 1 Biology of the honey bee, including behavior, genetics, evolution, pollination, sociality, and beekeeping practices.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>362</td>
<td>Fundamentals of Beekeeping 1 (0-2)</td>
<td>Prereq Entom 361 or c/f. Applied beekeeping practices including safety, equipment, colony instillation, manipulation for pollination and honey production, honey bee diseases and pests.</td>
<td></td>
</tr>
<tr>
<td>426</td>
<td>Population Analysis 1 Same as NATRS 426. Credit not granted for both Entom 426 and 526.</td>
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<tr>
<td>429</td>
<td>Population Theory 1 Same as NATRS 429. Credit not granted for both Entom 429 and 529.</td>
<td></td>
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</tr>
<tr>
<td>439</td>
<td>Taxonomic Entomology 2 or 4 (2-6)</td>
<td>Prereq Entom 340 or 343. Identification of insect orders and families. Insect collection required. Credit not granted for both Entom 439 and 539.</td>
<td></td>
</tr>
<tr>
<td>440</td>
<td>Taxonomy of Immature Insects 2 or 4 (2-6)</td>
<td>Prereq Entom 343. Identification of eggs, larvae, nymphs, and pupal stages of insects. Insect collection required. Credit not granted for both Entom 440 and 540.</td>
<td></td>
</tr>
<tr>
<td>443</td>
<td>Insect Ecology 3 (2-3)</td>
<td>Prereq Bio S 104, Entom 343, Math 140. Interrelationships of insects with the physical and biotic environment; population dynamics and community relations. Cooperative course taught by WSU, open to UI students (Ent 443). Credit not granted for Entom 443 and 477, 478, or 479.</td>
<td></td>
</tr>
<tr>
<td>445</td>
<td>Insect-Plant Interactions: Mechanisms of Resistance to Arthropods 1</td>
<td>Prereq Entom 343. Biochemical, ecological and microevolutionary principles of plant resistance. Cooperative course taught by UI (Ent 446), open to WSU students.</td>
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<tr>
<td>446</td>
<td>Insect-Plant Interactions: Plant Resistance to Arthropods 1</td>
<td>Prereq Entom 343. Principles and methods of screening and developing crop cultivars resistant to arthropods. Cooperative course taught by UI (Ent 446), open to WSU students.</td>
<td></td>
</tr>
<tr>
<td>448</td>
<td>Medical Entomology 2 Prereq Bio S 103, 104.</td>
<td>Aspects of medical entomology as they apply to humans. Cooperative course taught by WSU, open to UI students (Ent 448).</td>
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</tr>
<tr>
<td>449</td>
<td>Veterinary Entomology 1 Prereq Bio S 103, 104.</td>
<td>Aspects of medical entomology as they apply to warm-blooded, non-human animals. Credit not granted for both Entom 447 and 547. Cooperative course taught by UI (Ent 447), open to WSU students.</td>
<td></td>
</tr>
<tr>
<td>450</td>
<td>Principles of Applied Entomology 4 (3-3)</td>
<td>Prereq Entom 340 or 343. Utilization of biological, physical, cultural and chemical factors in managing insect pest populations.</td>
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</tr>
<tr>
<td>460</td>
<td>Insects for Teaching 2 Prereq general biology course. The use of insects in teaching scientific principles in the life sciences.</td>
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<tr>
<td>462</td>
<td>Systems in Integrated Crop Management 3 (2-3)</td>
<td>Prereq one semester calculus. Evaluation and use of computer models to make decisions for managing pests, diseases, and crop productivity. Credit not granted for both Entom 462 and 562.</td>
<td></td>
</tr>
<tr>
<td>472</td>
<td>Aquatic Entomology 1</td>
<td>Identification and biology of insects associated with aquatic and subaquatic environments. Cooperative course taught by UI (Ent 472), open to WSU students.</td>
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</tr>
<tr>
<td>474</td>
<td>Aquatic Entomology Lab 2 (0-6)</td>
<td>Prereq c/f in Entom 472. Field trips required. Cooperative course taught by UI (Ent 474), open to WSU students.</td>
<td></td>
</tr>
<tr>
<td>478</td>
<td>(442) Physiological Ecology of Insects 1</td>
<td>Prereq Entom 343, Math 140. Effects of and reactions to physical factors in the environment by arthropods. Credit not granted for Entom 443 and 477, 478, or 479.</td>
<td></td>
</tr>
<tr>
<td>479</td>
<td>Natural History of Insects 1</td>
<td>Prereq Entom 343, Math 140. Life history strategies and management of population of terrestrial arthropods. Credit not granted for Entom 443 and 477, 478, or 479.</td>
<td></td>
</tr>
<tr>
<td>490</td>
<td>Special Topics in Entomology V 1-4</td>
<td>May be repeated for credit; cumulative maximum 10 hours. Credit not granted for both Entom 490 and 590.</td>
<td></td>
</tr>
<tr>
<td>499</td>
<td>Special Problems V 1-4</td>
<td>May be repeated for credit. S, F grading.</td>
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<tr>
<td>511</td>
<td>Principles of Systematic Biology 3 (2-3)</td>
<td>Same as Zool 511.</td>
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<tr>
<td>526</td>
<td>Population Analysis 1 Same as NATRS 526. Credit not granted for both Entom 426 and 526.</td>
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<tr>
<td>529</td>
<td>Population Theory 1 Same as NATRS 529. Credit not granted for both Entom 429 and 529.</td>
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<tr>
<td>539</td>
<td>Taxonomic Entomology 2 or 4 (2-6)</td>
<td>Graduate-level counterpart of Entom 439; additional requirements. Credit not granted for both Entom 439 and 539.</td>
<td></td>
</tr>
<tr>
<td>540</td>
<td>Taxonomy of Immature Insects 2 or 4 (2-6)</td>
<td>Graduate-level counterpart of Entom 440; additional requirements. Credit not granted for both Entom 440 and 540.</td>
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<tr>
<td>541</td>
<td>Advanced Insect Ecology 3 (2-3)</td>
<td>Prereq Entom 433; general ecology course. Population and community dynamics, theory and application in natural and artificial systems. Field trips required. Cooperative course taught by UI (Ent 541), open to WSU students.</td>
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<tr>
<td>543</td>
<td>Predator-Prey Dynamics 1 Prereq calculus, general ecology, statistics. Dynamical consequences of interactions between predators and their prey at the population, community and ecosystem level.</td>
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<td>547</td>
<td>Introduction to Biological Control 3 (2-3)</td>
<td>Graduate-level counterpart of Entom 447; additional requirements. Credit not granted for both Entom 447 and 547.</td>
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<tr>
<td>550</td>
<td>Insect Physiology 4 (3-3)</td>
<td>Prereq Chem 240, Zool 352; Entom 340 or 343 or Zool 322. General principles of insect physiology; the mechanisms of vital processes in insects; organ, cellular, subcellular, chemical and physical levels. Cooperative course taught by WSU, open to UI students (Ent 550).</td>
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<tr>
<td>551</td>
<td>Applied Biological Control: Weeds 1 (2-3)</td>
<td>Prereq ecology, principles of biological control. Principles and methodologies in biological control of weeds. Cooperative course taught jointly by WSU and UI (Ent 551).</td>
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<tr>
<td>552</td>
<td>Applied Biological Control: Microbial Control 1 Prereq microbiology, plant pathology, or entomology; principles of biochemistry. Principles, theories and practical aspects of classical biological control of arthropods. Cooperative course taught jointly by WSU and UI (Ent 552).</td>
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<tr>
<td>556</td>
<td>Insecticides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Insecticides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism.</td>
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<tr>
<td>557</td>
<td>Herbicides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Herbicides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism.</td>
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</tr>
<tr>
<td>558</td>
<td>Pesticide Topics 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Current issues concerning pesticides in terms of toxicity, mode of action, and metabolism.</td>
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<tr>
<td>562</td>
<td>Systems in Integrated Crop Management 3 (2-3)</td>
<td>Graduate-level counterpart of Entom 462; additional requirements. Credit not granted for both Entom 462 and 562.</td>
<td></td>
</tr>
</tbody>
</table>
Insect-Plant Interactions: Population Dynamics
Prereq Entom 343, Math 140. Causes and processes of temporal and spatial changes in terrestrial arthropod communities. Credit not granted for Entom 443 and 577, 578, 579.

Physiological Ecology of Insects
Prereq Entom 343, Math 140. Effects of and reactions to physical factors in the environment by arthropods. Credit not granted for Entom 443 and 577, 578, 579.

Natural History of Insects
Prereq Entom 343, Math 140. Life history strategies and management of population of terrestrial arthropods. Credit not granted for Entom 443 and 577, 578, 579.

Physiological Interactions in Predator-Prey Relationships
Prereq Bio S 102. Rec general ecology. Intricate physiological and behavioral adaptations that have evolved in predator-prey relationships.

Special Topics in Entomology
V 1-4 May be repeated for credit; cumulative maximum 10 hours. Graduate-level counterpart of Entom 490; additional requirements. Credit not granted for both Entom 490 and 590.

Seminar
1 May be repeated for credit. Prereq. Prereg 20 hours biology. Reporting and discussing problems and research in entomology.

Noncropland Weed Biological Control Internship
V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereg graduate standing, by interview only. Supervised individual practicum in noncropland weed biological control; professionally related field interaction. Cooperative course taught by WSU, open to UI students (Ent 595). S, F grading.

Special Projects or Independent Study
Variable credit. S, F grading.

Master’s Research, Thesis, and/or Examination
Variable credit. S, F grading.

Master’s Special Problems, Directed Study, and/or Examination
Variable credit. S, F grading.

Doctoral Research, Dissertation, and/or Examination
Variable credit. S, F grading.

Program in Environmental Science and Regional Planning
Professor and Program Chair, W. W. Budd; Professors, G. W. Hinman, G. L. Young; Associate Professors, F. A. Ford, E. H. Franz, W. G. Hendrix; Assistants Professors, E. J. Brook, S. D. Hacker, T. A. Tsongas; Program Coordinator at WSU Tri-Cities and Adjunct Associate Professor, R. G. Scheeckhise.

The program coordinates two closely related fields of study: environmental science and regional planning. Environmental science is concerned with the study of natural and modified environments and their interactions with biological (including human) systems with an emphasis on the comprehensive understanding of the environmental/ecological context, assessment of beneficial and disruptive impacts, and methodologies to analyze, interrelate and resolve these complex systems. The regional planning curriculum provides an understanding of basic issues, methods, and processes in rural, land use, and environmental planning with comprehensive studies of natural and human systems. Students of both fields acquire the holistic and interdisciplinary perspectives and ecological understanding necessary to prepare them for a variety of roles in the study, planning, and management of resources and the environment.

The program offers courses leading to the degrees of Bachelor of Science in Environmental Science, Master of Science in Environmental Science, Master of Regional Planning, and Doctor of Philosophy in Environmental and Natural Resource Sciences. The master’s and bachelor’s degrees in environmental science are offered at WSU Tri-Cities.

Because of the diversity of these fields, the course of study for each student is flexibly designed in a unique, multi-optional interdisciplinary context. Environmental science majors can specialize in agricultural ecology, biological science, human or cultural ecology, environmental education, environmental quality control, hazardous waste management, natural resource management, physical science, systems and environmental land-use planning. Regional planning majors can specialize in a variety of areas including land-use planning, ecological planning, geographic assessment and planning, and environmental policy and planning. Environmental science majors specializing in environmental education may work toward senior high school teaching certificates with endorsements for the major and minors in physical and biological science.

The program is closely coordinated with the Environmental Research Center and other university research units. It is administratively supported by the Colleges of Agriculture and Home Economics, Engineering and Architecture, Sciences and Liberal Arts. The participating faculty resource list for the program includes some 65 members representing many disciplines.

The program is designed around the requirements listed below. A sequence will be designed by each student and the major advisor to provide training depth in an optional area of specialization. The program has identified nine optional areas of specialization: agricultural ecology, biological science, hazardous waste management, human ecology, environmental education, environmental quality (air & water), natural resources management, systems, and environmental/land use planning. (Fact sheets on each option are available from the ES/RP Program Office.) Students may also, in consultation with their advisor, develop an area of specialization outside of those identified. At least 40 of the total hours required for the Bachelor of Science in Environmental Science must be in the 300-400 level courses, 18 of which are in the chosen area of specialization (normally in not more than two departments). Majors in environmental science must satisfy General Education Requirements as specified for majors in the College of Science and the College of Liberal Arts. Many of these requirements are built into the curriculum below. Students should note the requirements with respect to Tier I, II, and III courses and also Areas of Coherence. Each major must also complete 8 hours in a modern foreign language unless he/she has completed two years of such language in high school (or one year in high school and 4 hours in the same language at WSU). The program provides a strong foundation for advanced study in many professional and basic research fields.

ENVIRONMENTAL SCIENCE DEGREE PROGRAM (123 HOURS)

Freshman Year

First Semester
Hours
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
ES/RP 101 [B] or 150 [Q] (GER) 4 or 3
Math 140 [N] or 171 [N] (GER) 4

Second Semester
Hours
Anth 101 [S] or Soc 101 [S] (GER) 3
Arts & Humanities [H,G] (GER) 3
Chem 106 [P] (GER) 4
Econ 101 [SI] (GER) 3
GenEd 110 [A] (GER) 3

Sophomore Year

Hours
Arts & Humanities [H,G] or Social Sciences [S.K] (GER) 3
Bio S 103 [B] (GER) 4
Engl 201 [W], 301 [W], or 402 [W] (GER) 3
ES/RP 210 3
Phys 101 [P] or 201 [P] (GER) 4

Second Semester

Hours
Bio S 104 [B] (GER) 4
Chem 240 or 340 & 341 4 or 5
GenEd 111 [A] or Geol 102 [P] (GER) 3 or 4
Phys 102 [P] or 202 [P] (GER) 4

Junior Year

First Semester
Hours
BC/BP 364 3
ES/RP 355 [M] 3
GenCB 301 or Micro 301 4

Degree Program Requirements

Certification Requirements

Requirements for certification into the Bachelor of Science Program in Environmental Science:
1.) completion of 30 semester hours of course work with a g.p.a. of 2.00, and
2.) completion of the courses listed in the catalog in the freshman year of the environmental science curriculum with a grade of C- or better. (Courses not required to fulfill university requirements for graduation may be waived for certification.)
GenEd 111 [A] or SoilS 201 [B] (GER) 3
Elective 3
Complete Writing Portfolio

Second Semester Hours
Anth 309 [K] (GER)1 3
Bio S 372 4
ES/RP 4901 1
Stat 212 [N] (GER) or 412 3
Elective 3

Senior Year
First Semester Hours
Bio S 474 3
ES/RP 404 [M] 3
ES/RP 491 1
300-400-level Soc [S,K] (GER)2 3
Electives 6

Second Semester Hours
300-400-level Ag Ec or Econ4 3
ES/RP 444 4
Tier III Capstone (GER) 3
Electives 6

NOTES
Courses taken to fulfill the above requirements, as listed, cannot be taken to satisfy requirements for the option. Before choosing options listed, students are encouraged, in close consultation with an advisor, to create their own options, ones more closely fitted to their specific needs; such option alternatives must be approved by the program advisor. Students with a dual major or who already have a bachelor’s degree may use the other degree program as a substitution for the required option, subject to advisor’s approval.

Minor in Environmental Science
A minor in environmental science requires 18 hours, including ES/RP 101, 335, 444, and elective courses to be chosen in consultation with an ES/RP advisor. For example, courses such as: any ES/RP, C E 174, NATRS 403, Soc 331, SoilS 301, 360, Zool 330.

Preparation for Graduate Study
Before applying for admission to the graduate programs, a student should have completed an undergraduate curriculum that included examination of a physical, biological, or social system in sufficient depth to serve as background for advanced investigation of one or more of these systems in an ecological context and a minimum g.p.a. of 3.0. For graduate study in environmental science, previous course work in sociology or cultural anthropology, conservation of natural resources, biological science, chemistry or physics, calculus, and ecology is required. Students interested in assistantships should provide Graduate Record Examination scores. General requirements for the Master of Science degree in Environmental Science include 300-400-level or graduate-level courses in ecology; mathematics; statistics; or computer science; applied physical, biological, or social science; environmental impact assessment; graduate seminar; and special topics in environmental science; an option (an area of specialization) with a minimum of 10 credit hours of courses; and a thesis or special project. A minimum of 32 hours of graduate credit is required.

The program has been successful in placing MS graduates in a variety of positions with federal, state, and local agencies, industries, and academia, as environmental and resource management specialists. Students entering the Master of Regional Planning (MRP) program are expected to have previous coursework in economics, sociology or cultural anthropology, natural science, quantitative skills such as mathematics, and communication skills. Applicants are expected to have a minimum g.p.a. of 3.0 in their undergraduate field and to present evidence of commitment to the field of planning. Prior work experience in planning or related fields is considered in evaluating applicants. Students are required to complete not less than 35 graduate credit hours, including a minimum of 9 hours of core planning courses, and 6 hours of thesis or 4 hours of project credit.

MRP candidates are expected to develop a specialization through course work in an allied discipline, but the philosophy of the program is oriented toward preparing graduates for practice in public agencies, tribal agencies, or as consultants in the private sector.

Students entering the PhD program should have a g.p.a. of at least 3.0, 10 semester hours of basic biological and/or physical sciences, and a faculty member to act as advisor. A total of 72 hours is required beyond the bachelor’s degree, 34 of which must be in graded course work.

Description of Courses

Environmental Science and Regional Planning
ES/RP
150 [Q] Natural Science in the Environment 3 (2-3) Introduction to scientific principles and problem solving with applications to studies of the environment.
174 Introduction to Meteorology and the Atmospheric Environment 3 Same as C E 174.
210 Microcomputer Models of Environmental Systems 3 Prereq Math 140 or 171; Rec ES/RP 101. Introduction to using microcomputers to model environmental systems. Cooperative course taught by WSU, open to UI students (EnvS 210).
301 Forest and Range Plant Resources 3 (2-3) Same as NATRS 301.
311 Natural Resource Economics 3 Same as Ag Ec 311.
370 [H] Environmental Ethics 3 Same as Phil 370.
402 Human Health and the Environment 3 Prereq Bio S 103, 104, Chem 105, 106; ES/RP 335 or junior in ES/RP. Problem-solving approach to adverse effects on human health caused by contamination of environmental media or anthropogenic changes in ecosystems. Credit not granted for both ES/RP 402 and 502.

403 Environmental Geology 3 Same as Geol 403.
406 Introduction to Radiological Science 2 Prereq one course each in biology, calculus, chemistry, physics. Fundamentals of atomic physics; interactions of radiation with matter; radiation dosimetry and biology, radiocology and radiological health protection.
409 Applied Radiological Physics 3 (2-3) Prereq calculus course; Phys course; Rec ES/RP 406. Production, interactions and measurement of radiation, with application to radiological health protection concerns. Credit not granted for both ES/RP 409 and 509.
411 Limnology 4 (2-2) Same as Zool 411.
412 [M] Natural Resource Policy and Administration 3 (2-2) Same as NATRS 438.
414 Introduction to Environmental Biophysics 2 Same as SoilS 414.
415 Environmental Biophysics Lab 1 (0-3) Same as SoilS 415.
416 Radiation Biology 4 (3-3) Prereq introductory radiological physics, or one course each in biology and radiological physics; Rec ES/RP 406. Effects of ionizing radiation at the molecular, cellular, organ and organism level. Credit not granted for both ES/RP 416 and 516.
418 Human Issues in International Development 3 Same as Anth 418.
424 Environmental Health Assessment 2 Prereq one course each in biology, calculus, chemistry, general ecology and physics; Rec ES/RP 406. Environmental transport, fate and effects of radioactive and hazardous materials. Credit not granted for both ES/RP 424 and 524.
425 Economic Analysis of Public Projects and Policies 3 Same as Geol 425.
426 Population Analysis 1 Same as NATRS 426. Credit not granted for ES/RP 426 and 526.
427 Environmental Chemistry 2 Same as Chem 427.
428 Introduction to Pollution Prevention 3 Environmental, technical and legal aspects of pollution prevention. Cooperative course taught jointly by WSU and UI (EnvS 428).
429 Population Theory 1 Same as NATRS 429. Credit not granted for both ES/RP 429 and 529.
444 Environmental Assessment 3 Rec Bio S 372. Analysis of environmental impact statements and their legal framework; methods of environmental assessment and team development of an impact statement. Credit not granted for both ES/RP 444 and 544. Cooperative course taught by WSU, open to UI students (Geol 444).
445 Hazardous Waste Management 3 Environmental, technical, and political aspects of hazardous waste management; evaluative methods, risk assessment, and current management requirements. Credit not granted for both ES/RP 445 and 545.
451 Energy Production and the Environment 2
Preq biology course; general ecology course; Rec ES/RP 406. Evaluation of the impacts of nuclear and other forms of energy production on humans and the environment. Credit not granted for both ES/RP 451 and 551.

452 Environmental Microbiology 3 Same as Micro 452. Credit not granted for both ES/RP 452 and 552.

466 Environmental Psychology 3 Same as Psych 466.

470 Advanced Remote Sensing 3 (2-3) Same as SoilS 474.

471 Meteorology 3 Same as C E 471. Credit not granted for both ES/RP 471 and 571.

472 Economic Development and Underdevelop-
ment 3 Same as Econ 472.

480 Advanced Resource Economics 3 Same as Ag Ec 480.

481 Economics of Environmental Issues 3 Same as Econ 481.

486 Introduction to Geographic Information Systems 3 (1-6) Rec DOS knowledge. Geogra-
phic Information Systems technology. Credit not granted for both ES/RP 486 and 586.

490 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

491 Senior Seminar 1 Preq senior in ES/RP.

492 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours.

493 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours.

495 Undergraduate Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.

496 Cooperative Education Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.

499 Geo Geol 1-4 May be repeated for credit. S, F grading.

501 Advanced Topics in Transportation Engi-
neering V 2-4 Same as C E 501.

502 Human Health and the Environment 3 Graduate-level counterpart of ES/RP 402; ad-
ditional requirements. Credit not granted for both ES/RP 402 and 502.

503 Natural Resource Planning 3 (2-3) Same as NATRS 503.

504 Ecosystem Management 3 Analysis of ecosys-
tem processes; dual emphasis on ecological principles and development of methods and concepts to evaluate policies for management.

509 Applied Radiological Physics 3 (2-3) Graduate-
level counterpart of ES/RP 409; additional requirements. Credits not granted for both ES/RP 409 and 509.

510 Applied Radiation Dosimetry 3 (2-3) Graduate-
level counterpart of ES/RP 410; additional requirements. Credit not granted for both 410 and 510.

511 Legal Process 3 Rec ES/RP 444. Legal process in general and role of the judiciary in natural resource management. Cooperative course taught jointly by WSU and UI (Law 511).

513 Environmental Epidemiology 3 Preq Stat 410. Credit not granted for both 410 and 510.

515 Environmental Production and the Environment 2 Graduate-level counterpart of ES/RP 451; ad-
ditional requirements. Credit not granted for both ES/RP 451 and 551.

522 Environmental Microbiology 3 Same as Micro 552. Credit not granted for both ES/RP 552 and 552.

555 Environmental Planning 3 State, local and federal approaches to environmental planning and their interactions in private and public land use and development decisions.

556 Insecticides: Toxicology and Mode of Ac-
tion 1 Same as Entom 556.

557 Herbicides: Toxicology and Mode of Action 1 Same as Entom 557.

558 Pesticide Topics 1 Same as Entom 558.

565 Watershed Management 3 Same as NATRS 560.

567 Regional Landscape Inventory and Analy-
sis 5 (2-9) Graduate-level counterpart of L A 467; additional requirements. Credit not granted for both L A 467 and ES/RP 567.

571 Meteorology 3 Same as C E 571. Credit not granted for both ES/RP 471 and 571.

575 Geographic Information Systems 3 Preq Geo Geol 385. Computers and management of data organized on regional geographic bases; prepa-
ration overlay, coding, and manipulation of data for regional planners and land managers. Cooperative course taught by UI (Geog 475), open to WSU students.

584 Engineering Aspects of Aquatic Biology 4 (3-3) Same as C E 584.

585 Aquatic System Restoration 3 (2-3) Same as C E 585.

586 Introduction to Geographic Information Systems 3 (1-6) Graduate-level counterpart of ES/RP 486; additional requirements. Credit not granted for both ES/RP 486 and 586.

590 Special Topics 2 May be repeated for credit; cumulative maximum 6 hours. Cooperative course taught by WSU, open to UI students (Geog 590).

591 Special Topics 2 May be repeated for credit; cumulative maximum 4 hours.

592 Special Topics 2 May be repeated for credit; cumulative maximum 4 hours.

593 Seminar in Environmental Science and Re-
gional Planning 1 May be repeated for credit, cumulative maximum 8 hours.

594 Environmental and Natural Resources Is-
sues and Ethics 2 or 3 Same as NATRS 594.

595 Graduate Internship V 2-5 By interview only. Practical work experience in appropriate agencies; for graduate career students. S, F grading.

596 Cooperative Education Internship V 2-5 May be repeated for credit; cumulative maxi-
mum 5 hours. By interview only. Practical experience in appropriate agencies; for career graduate students in environmental science and regional planning. S, F grading.

597 Technical and Public Communications in Environ-
mental Science 2 Preq technical writing course; Rec public speaking course. Development of written and oral communica-
tion skills for practical application in the field of environmental science.

600 Special Projects or Independent Study Vari-
able credit. S, F grading.

700 Master’s Research, Thesis, and/or Exam-
ation Variable credit. S, F grading.
Degree Program Requirements

For the degree Bachelor of Arts in Fine Arts a total of at least 47 hours of fine arts is required; 29 of these hours must be in 300-400-level courses.

BACHELOR OF ARTS IN FINE ARTS DEGREE PROGRAM (125 HOURS)

Freshman Year

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<th>Course</th>
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<tr>
<td>First Semester</td>
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<tr>
<td>Communications Proficiency [C,W] (GER)</td>
<td>3</td>
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<tr>
<td>F A 101</td>
<td>3</td>
</tr>
<tr>
<td>F A 103</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Second Semester</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>F A 110</td>
<td>3</td>
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<tr>
<td>F A 350</td>
<td>3</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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Sophomore Year

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<th>Course</th>
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<tbody>
<tr>
<td>First Semester</td>
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<tr>
<td>F A 111</td>
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<tr>
<td>F A 201</td>
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Junior Year

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Senior Year

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</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

Certification

Prospective applicants for certification are responsible for acquainting themselves with all requirement courses and procedures. Details including specific course requirements and portfolio submission are available in the departmental office.

Bachelor of Fine Arts certification requirements:

1. 12 hours from F A 103, 110, 111, 320, 350;
2. 3 hours from F A 201 or 202;
3. 6 additional hours in major emphasis;
4. 2.0 cumulative g.p.a. in F A courses;
5. slide portfolio and exhibit presentation of original art work.

Bachelor of Arts in Fine Arts certification requirements:

1. 12 hours from F A 103, 110, 111, 320, 350;
2. 3 hours from F A 201 or 202;
3. 2.0 cumulative g.p.a. in F A courses.

Art Minor

A minor in art requires 18 hours including F A 103, Fundamentals; F A 110, Drawing; and F A 201, 202, or 304, Modern Art. The remaining 9 hours of electives must be in 300-400-level courses.

Art History Minor

A minor in art history requires 18 hours including F A 201 and 202. The remaining 12 hours of electives must be in 300-400-level art history courses.

转移学分

The Department of Fine Arts will accept up to 18 credit hours in art toward the major and 9 credit hours in art toward the minor.

交换项目

The Department of Fine Arts has a tuition-free exchange for four students with the School of Fine Arts at Nihon University, Tokyo, Japan. All art majors at WSU are eligible for this one-year study in Japan. Selection is made in the winter. Other opportunities for undergraduate study abroad in Europe, Australia, and the Far East are available from the Office of International Students and Scholars.

研究生预备研究

The Fine Arts Department graduate program offers...
the MFA degree in two-dimensional studio arts and in three-dimensional studio arts. The student may place major or minor emphasis in any of the following areas: drawing, electronic imaging, painting, photography, printmaking, ceramics, and sculpture.

Description of Courses

Art History
FA
101 [H] Introduction to Art 3 For nonmajors. Appreciation of various visual art forms; emphasis on contemporary period.

201 [H] World Art History 3 Historical survey of art and architecture from prehistory through 1450.

202 [H] World Art History 3 Historical survey of art and architecture from 1450 to the present.


302 [G] The Arts of Asia 3 Prereq GenEd 110, 111. Art and architecture of India, China, and Japan, within their historical, religious, and cultural contexts.

303 [H] Modern Art-19th Century 3 Prereq FA 201, 202. Modern art in the early modern period from around the globe.


308 Women Artists I, Middle Ages-1900 3 Survey of women artists from Middle Ages to end of nineteenth century.

310 Women Artists II, Twentieth Century 3 Survey of women artists in the twentieth century.

403 [M] Modern Theories of Art 3 Selected topics in 19th and 20th century theories of art.

404 [M] Advanced Non-western Art History 3 May be repeated for credit; cumulative maximum 6 hours. Prereq FA 201, 202. Different topics related to the arts in Africa the Americas, Oceania, and Asia.

405 [M] Contemporary Art: Theory and Practice 3 Contemporary theories of art and how those theories are developed.

498 Contemporary Issues Seminar 2 May be repeated for credit; cumulative maximum 4 hours. Prereq FA 304. Recent history of painting, sculpture, photography, graphic arts or criticism.

500 Graduate Art History 2 May be repeated for credit; cumulative maximum 6 hours. Prereq 9 hours undergraduate art history.

Studio Courses

Note: unless specified, media used in studio courses are at the option of the instructor.

Foundation
FA
103 Art 3 (0-6) Introduction to formal elements through studio experience.

Drawing
FA
110 Drawing 3 (0-6) Composition in pictorial space, visualization of ideas, drawing from life.

111 Figure Drawing 3 (0-6) Prereq FA 103, 110.

312 Drawing 3 (0-6) May be repeated for credit. Prereq FA 110 or 111.

313 Figure Drawing 3 (0-6) May be repeated for credit. Prereq FA 111.

510 Graduate Drawing 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

511 Graduate Drawing 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

512 Graduate Drawing 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

Painting
FA
320 Beginning Painting 3 (0-6) Prereq FA 103, 110. Basic painting; introduction to composition and color structure.

321 Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq FA 320.

322 Transparent Watercolor 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

423 Advanced Painting 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq FA 321, major in F A.

520 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

521 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

522 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

Electronic Imaging
FA
331 Art and Its Relationship to New Technologies 3 Prereq FA 103, 110. Introduction to visual communication through technology; historical overview and cultural implications of photography, film, video, and electronic art.

332 Introduction to Electronic Imaging 3 (0-6) Prereq FA 331. Principles and processes of electronic image processing, image/text design and designing for the internet.

433 Intermediate Electronic Imaging 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq FA 332. Intermediate image processing techniques/text design, internet projects and electronic drawing; emphasis on individual concepts and creativity.

434 Advanced Electronic Imaging 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq FA 433, major in F A. Advanced studio/seminar for students to develop independent projects within the digital environment based on concepts and skills developed in FA 331, 332, 433.

495 Electronic Imaging Internship V 8-12 Prereq 6 credits in FA 434, major in FA. Placement in work-related electronic imaging environments for practical application and experience.

530 Graduate Electronic Imaging 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Application of image/text, electronic drawing, internet projects, multimedia, other aspects of electronic tools.

531 Graduate Electronic Imaging 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Advanced research in projects relating to electronic tools.

532 Graduate Electronic Imaging 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Exploration of experimental techniques, concepts and studies using electronic technology.

Ceramics
FA
340 Ceramics 3 (0-6) Prereq FA 103, 110. Forming processes; the potter’s wheel; glazing; firing.

341 Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq FA 340.

442 Ceramics 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq FA 341.

540 Graduate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

541 Graduate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

542 Graduate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

Sculpture
FA
350 Sculpture 3 (0-6) Prereq FA 103, 110. Composition of form in the three-dimensional space.

351 Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq FA 350.

452 Sculpture 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq FA 351, major in F A.

550 Graduate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

551 Graduate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

552 Graduate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

Printmaking
FA
370 Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq FA 103, 110. Variety of techniques: screenprinting, etching and lithography; emphasis is given to screenprinting during particular terms.

471 Printmaking 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq FA 370.

570 Graduate Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

571 Graduate Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

572 Graduate Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

Photography
FA
380 Introduction to Photography 3 Prereq FA 103, 110. An experience with cameras and associated materials and techniques; photography in a historical and aesthetic context.

381 Photography 3 (0-6) Prereq FA 380. Beginning darkroom techniques.

382 Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq FA 381.

385 Digital Imaging/Color Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Introduction to digital imaging software, digital cameras, scanning, and digital output options; conventional chemical-based color photography techniques.

483 Photography 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq FA 382, major in F A.

580 Graduate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

581 Graduate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

582 Graduate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
Department of Food Science and Human Nutrition

Professor and Department Chair, A. McCurdy; Professors, S. Batkus, F. Hoskins, L. Luedeck, L. Massey, S. Spayd, B. Swanson; Associate Professors, J. Armstrong, K. Beerman, Z. Czuchajowska, R. Dougherty, C. Edwards, V. Hillers, M. Mitchell, D. Pond-Smith, J. Powers, T. Shultz; Assistant Professors, C. Heiss, C. Weisskopf; Instructors, L. Jensen, D. Swanson, S. Scheuermann.

The Department of Food Science and Human Nutrition offers courses of study in two undergraduate major fields, food science and dietetics with different options and areas of interests available in each field. Students enrolled in these options or areas of interests complete prescribed courses of study leading to the Bachelor of Science in Food Science and Human Nutrition.

Food Science

Food science students at Washington State University learn how to convert food commodities into high quality food products that are safe and nutritious. As part of the BS degree, students receive training and learn skills relative to the production, processing, preservation, safety, evaluation, and distribution of foods. The food processing industry is continually challenged to evaluate existing foods for quality, as well as the development of new foods to better meet the nutritional needs of the world. The many facets of food science create a wide variety of career opportunities in industry, government, and education. Graduates from Washington State University have traditionally received multiple offers of employment, many in the Pacific Northwest, at salaries that are generally equal to or better than those of other professions at equivalent levels of training and experience.

The undergraduate food science curriculum closely follows the recommendation of the national professional organization, the Institute of Food Technologists, and provides the student with a working knowledge of food science and food technology. In the first two years of college, students enroll in science courses and complete most General Education Requirements. This part of the curriculum can be completed at most community colleges prior to transferring into the food science program. In the junior and senior years, the curriculum emphasizes courses in food processing, food chemistry, food microbiology, and other specialized areas such as the processing and manufacture of cereal, dairy, fruit, vegetable, meat, and poultry products. Students with specific interest and career goals can gain additional education and training in those areas by taking elective courses in their areas of interest, participating in internships with food companies, and/or conducting a special problems project with a faculty member.

Human Nutrition

General Dietetics is the first step toward obtaining training in dietetics to prepare for work related to food and nutrition. By following the prescribed course of study of foods (nutrition and foodservice management based on chemistry, biochemistry, physiology and business), the student fulfills the minimum academic requirements of The American Dietetic Association (ADA) as well as those of the department and university. The student must gain post-baccalaureate supervised practice experience through a dietetic internship before becoming eligible for registration and ADA membership. Internships in hospitals or selected organizations are very competitive and are available mostly in the Midwest and eastern part of the United States. Those completing the program of study for a Bachelor of Science degree and an internship are qualified for a variety of positions as members of a management team and/or healthcare team in hospitals; schools, colleges, and universities; and government and private agencies.

The Coordinated Undergraduate Option in General Dietetics combines classroom education with supervised experience in dietetics. Course work is similar to that described for general dietetics. In this four-year option, the student completes the academic requirements for the department and university, as well as the supervised practice requirements for registration and membership in the American Dietetic Association and for taking the examination to become a registered dietitian. Graduates of this option qualify for the same kinds of positions as do the graduates of the General Dietetics Option who complete a post-baccalaureate internship.

After completing academic and performance requirements, it is necessary to pass a registration examination which is given twice each year under the auspices of The Commission on Accreditation for Dietetic Education. When students successfully complete the examination, they are Registered Dietitians and are entitled to use the initials R. D. to indicate professional competence.

Other Opportunities

The department offers minors in food science, foods and nutrition, and food service management. In addition to undergraduate studies, the department offers courses of study leading to the degrees of Master of Science in Food Science, Master of Science in Human Nutrition, Doctor of Philosophy (Food Science) and Doctor of Philosophy (Nutrition). An accelerated program to obtain both a Bachelor of Science degree in Food Science and Human Nutrition and a Master of Science degree in Human Nutrition within a five-year period is also offered.

Degree Program Requirements

FOOD SCIENCE DEGREE PROGRAM (120 HOURS)

This degree program has been developed for the student who is interested in the science of food processing. Emphasis is placed on the scientific aspects of processing and it offers more laboratory analysis experience.

Freshman Year

First Semester

Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 140 [N] or 171 [N] (GER) 4

Second Semester

Arts and Humanities [H,G] (GER) 3
Bio 103 [B] (GER) 4
Chem 106 [P] (GER) 4
FSHN 170 2
GenEd 111 [A] (GER) 3

Note: Students must complete Food Science 170 and GenEd 111 (GER) in order to remain on the degree program.

 האחרכל המילים במḿ קצרה

סמסטר הראשונה

علوم 105 [P] ( GER) 4
פילוסוף 101 [W] ( GER) 3
 العالمية الأولى [A] ( GER) 3
數학 140 [N] או 171 [N] ( GER) 4

סמסטר השני

מדע וה። [H,G] ( GER) 3
ביולוגיה 103 [B] ( GER) 4
כימיה 106 [P] ( GER) 4
FSHN 170 2
عالمية 111 [A] ( GER) 3

הערה: учени המholm בתקופה הראשונה לא נמצא על מון ההודר של הלימודים. יש镊י矿业 המלות מיום הקצרה במים קצרים.
### Sophomore Year

#### First Semester
- Ag Ec 201 [S] (GER) 3
- Chem 240 4
- Food Production Course 1
- Phys 101 [P] (GER) 4
- SpCom 102 [C] (GER) 3

#### Second Semester
- A S 314 or FSHN 233 3
- BC/BP 364 3
- FSHN 200 3
- Micro 301 4

### Junior Year

#### First Semester
- Ag Ec 350 3
- FSHN 303 3
- FSHN 416 2
- FSHN 417 2
- FSHN Commodity Course 1
- Stat 212 [N] (GER) 4

#### Second Semester
- Arts and Humanities [H,G] or Social Sciences [S,K] GER 3
- FSHN 422 or 450 3
- FSHN Commodity Course 2
- FSHN 453 3
- FSHN 434 1
- Intercultural Studies [I,G,K] GER 3

### Senior Year

#### First Semester
- Engl 402 [W] (GER) 3
- FSHN 402 1
- FSHN 460 3
- FSHN 461 [M] 3
- FSHN Commodity Course 1
- Tier III Capstone (GER) 3

#### Second Semester
- FSHN 422 or 450 3
- FSHN 462 4
- FSHN 470 3
- Elective 4

1. Math 171 and 172 are required of those students who will be competing for scholarships offered by the Institute of Food Technologists.
2. Food Production courses include (but are not limited to): A S 101, CropS 101, 201, Hort 201, 311, 320, 321, 418, 420; Meat: A S 101, 360; Wine (enology): Hort 313, 418, Micro 428.

### Suggested electives for areas of interest:
- Business/Marketing: Acctg 230, 231, Ag Ec 360, B Law 210, Cpt S 405, Mgt 301, Psych 306.

### Internships, FSHN 495
- Internships with food companies, processors, and wineries can be arranged for three to six months to provide students with work experience in their areas of interest.

### HUMAN NUTRITION GENERAL DIETETICS DEGREE PROGRAM (126 HOURS) ✔FYDA

#### Freshman Year

<table>
<thead>
<tr>
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#### Second Semester

| Chem 102 [P] (GER) | 4 |
| FSHN 233 | 3 |
| GenEd 110 [A] or 111 [A] (GER) | 3 |
| Micro 120 [B] (GER) | 4 |
| Psych 105 [S] or Soc 101 [S] (GER) | 3 |

#### Sophomore Year

<table>
<thead>
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<td>Chem 240</td>
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<td>FSHN 121</td>
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#### Second Semester

| Anth 309 [K] (GER) 3 | 3 |
| BC/BP 364 4 | 4 |
| FSHN 281 | 1 |
| H A 359 | 4 |
| Zool 315 | 4 |

#### Junior Year

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<td>Electives</td>
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- Complete Writing Portfolio

#### Second Semester

| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 1 | 3 |
| FSHN 201 | 1 |
| FSHN 380 | 3 |
| FSHN 430 | 3 |
| H D 204 | 3 |

#### Senior Year

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<td>FSHN 438</td>
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<td>FSHN 480</td>
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<td>Statistics 212 [N] (GER)</td>
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<td>Tier III Capstone (GER)</td>
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#### Second Semester

| FSHN 420 | 2 |
| FSHN 426 [M] | 3 |
| FSHN 435 | 3 |
| FSHN 437 | 1 |
| Electives | 7 |

1. H D 205 is recommended.
2. Math 205 is recommended.
3. See advisor or Director of Dietetics
4. Optional for second semester sophomore year; can be taken first semester of junior year if not following the CUOGD option.

### Required for HNF majors: I D 101 or 202; H D 201 or 204. NOTE: I D 202 can also be used to partially fulfill a GER in Arts and Humanities.

### COORDINATED UNDERGRADUATE OPTION IN GENERAL DIETETICS (CUOGD) DEGREE PROGRAM (136 HOURS)

Application for admission to the CUOGD is ordinarily made during the spring semester of the sophomore year. Application deadline is February 1. Transfer deadline is February 1. Transfer students should consult the director for advice on applying and planning.

#### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>Chem 101 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER) 2</td>
<td>3</td>
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#### Second Semester

| Chem 102 [P] (GER) | 4 |
| FSHN 233 | 3 |
| GenEd 110 [A] or 111 [A] (GER) | 3 |
| Micro 120 [B] (GER) | 4 |
| Psych 105 [S] or Soc 101 [S] (GER) | 3 |

#### Sophomore Year

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<td>Chem 240</td>
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<td>FSHN 120</td>
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<td>FSHN 121</td>
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</tr>
<tr>
<td>Zool 251</td>
<td>4</td>
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#### Second Semester

| Anth 309 [K] (GER) 3 | 3 |
| BC/BP 364 4 | 4 |
| FSHN 281 | 1 |
| H A 359 | 4 |
| Zool 315 | 4 |

#### Junior Year

<table>
<thead>
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<th>First Semester</th>
<th>Hours</th>
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<td>FSHN 350</td>
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<tr>
<td>Electives</td>
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</tbody>
</table>

- Complete Writing Portfolio

#### Second Semester

| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 1 | 3 |
| FSHN 201 | 1 |
| FSHN 380 | 3 |
| FSHN 430 | 3 |
| H D 204 | 3 |

#### Senior Year

<table>
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<th>First Semester</th>
<th>Hours</th>
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- Complete Writing Portfolio

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<tr>
<td>FSHN 380</td>
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</tr>
<tr>
<td>FSHN 426 [M]</td>
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<tr>
<td>FSHN 430</td>
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<tr>
<td>FSHN 435</td>
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<tr>
<td>FSHN 437</td>
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<tr>
<td>FSHN 476</td>
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#### Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSHN 370</td>
<td>3</td>
</tr>
</tbody>
</table>
FSHN 477 8
FSHN 480 3
Stat 212 [N] (GER) 3

Second Semester  Hours
FSHN 439 2
FSHN 440 3
FSHN 478 8
FSHN 485 2
Tier III Capstone (GER)' 3

1' H D 205 recommended.
2 Math 205 recommended.
3 See advisor or Director of CUOD.
4 The senior semester sequences will be reversed for half of the students.
5 Recommended that this requirement be fulfilled earlier.

For application and admission information, write Department Chair, FSHN Building, Washington State University, Pullman, WA 99164-6376, or phone (509) 335-3843.

Minors in Food Science and Human Nutrition

Food Science: 19 semester hours, 8 of which must be in 300-400-level courses. FSHN 303, 416, 460, and 461 are required; other courses must be taken from the food science area.

Food Service Management: 18 or 19 semester hours, 8 of which must be in 300-400-level courses. FSHN 120, 121, 30, 380, 480, plus H A 358 for hotel and restaurant administration majors or FSHN 281 and H A 359 for other majors.

Foods and Nutrition: 18 or 19 semester hours, 8 of which must be in 300-400-level courses. FSHN 120/121; 233, 330, 331; 420 or 430 are required. BC/BP 364 is a required prerequisite.

Transfer Students

Students planning to transfer to the department should coordinate their programs of study with departmental advisors to select courses, in the proper sequence, that are applicable to the degree requirements.

Preparation for Graduate Study

Students who plan to work toward an advanced degree should seek advice from their advisors in the selection of courses. This will ensure the courses selected will strengthen their education in areas needed for successfully completing an advanced degree program.

Students from related fields who wish to obtain an advanced degree in food science or nutrition are encouraged to apply as they may be well prepared for graduate studies. They would be required to take certain key courses required of undergraduates in addition to those needed for their graduate program.

Students who identify an interest in graduate work early in their studies are encouraged to participate in an accelerated course of study in which both a BS and MS can be earned in five years. A student should contact the advisor no later than the end of the junior year so a course of study can be planned which schedules appropriate prerequisites to graduate courses and an introduction to research projects.

Description of Courses

Food Science and Human Nutrition

FSHN

120 Food Preparation 3 Prereq c/c in FSHN 121. Principles and methods of food preparation, including physical and chemical changes, quality, composition and use of foods.

121 Food Preparation Lab 1 (0-3) Prereq c/c in FSHN 120. Principles and methods of food preparation, including physical and chemical changes, quality, composition, and use of foods.

130 [B] Nutrition for Living 3 Information related to the interaction of nutrients in the body and factors which govern nutrient requirements.

170 Food for Mankind 2 Interrelationships between people and their food supply; broad coverage of contemporary food-related topics.

200 Food Quality Assurance 3 (2-2) Methodology and design of quality assurance programs for analyzing microbial and chemical hazards and physical factors associated with food quality. Cooperative course taught by WSU, open to UI students (FST 201).

201 Professional Dietetics 1 Structure, function and history of the American Dietetic Association, and educational requirements and roles of registered dietitian.

210 The Science of Viticulture and Enology 2 Aspects of grapes and wines including fermentation and processing, physiology of alcohol and other components, history, general survey of wines of the US and the world, and evaluation methods; guest lecturers from the industry. Cooperative course taught by UI (FST 210), open to WSU students.

233 Human Nutrition 3 A concentration in food chemistry or biochemistry course; or Zool 251 or 315. Applying principles of chemistry, biology, and physiology to the study of nutrition emphasizing nutrient functions, nutrient requirements and impact of diet on health and disease.

281 Quantity Food Production Laboratory 1 (0-3) Prereq FSHN 120, 121; c/c in H A 359. Recipe adjustment and costing; preparing and serving food in quantity.

301 Dairy Products 3 (2-3) Prereq Micro 101 or 301; org chem. Specialized techniques and practices of dairy product manufacturing and marketing. Field trip required. Cooperative course taught by WSU, open to UI students (FST 301).

302 Meat and Poultry Products 3 (2-3) Prereq Micro 101 or 301; org chem. Specialized techniques and practices of meat, poultry, and egg processing and marketing. Field trip required.

303 [M] Food Processing 3 (2-3) Prereq Micro 101 or 301; org chem. Specialized techniques and concepts of food fruit and vegetable processing and marketing. Field trip required. Cooperative course taught by WSU, open to UI students (FST 303).

304 Cereal Products 2 Prereq org chem. Technical principles relating to the production and commercial processing of legume and cereal foods. Field trip required. Cooperative course taught by UI (FST 304), open to WSU students.

305 Nutrition Related to Fitness and Sport 2 Prereq FSHN 233. Identification of energy, macro/micro nutrient and fluid requirements during exercise; fitness of dietary regimens and ergogenic aids for pre and post competition, weight maintenance, and wellness. Cooperative course taught by UI (FCS 305), open to WSU students.

330 [M] Physiological Nutrition 3 Prereq Chem 240; FSHN 130 or 233; Zool 251, 315. Functional chemistry of nutrients in physiological systems and nutrient interactions.

331 Nutrition in the Human Life Cycle 3 Rec FSHN 130 or 233. How growth and development impacts nutrient requirements throughout the life cycle. Cooperative course taught jointly by WSU and UI (HE 486).

350 Dynamics of Dietetics 3 Rec FSHN 130 or 233; FSHN 120, 121. Dynamics of communication and counseling in nutritional care management and community nutrition in health and disease.

370 Food Laws and Quality 3 Food laws, industry standards and qualities of foods necessary for consumer acceptance; sanitation.

380 Management in Food Service Systems 3 Prereq FSHN 281, HA 359. Management process, functions, inventory procurement and personnel management in food service.

401 Topics in Food Science and Human Nutrition V 1-3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in food science and human nutrition. Credit not granted for both FSHN 401 and 501.

402 Seminar in Food Science 1 May be repeated for credit; cumulative maximum 2 hours. Current literature and special reports.

403 Food Security 3 Prereq junior standing. Examination of people's access to and use of food from multidisciplinary perspectives, emphasizing critical thinking and problem solving.

404 Food Product Development 2 Prereq senior standing; BC/BP 364. Development of food products from concept to marketplace. Cooperative course taught by WSU, open to UI students (FST 407).

405 Eating Disorders 2 Examination of anorexia nervosa, bulimia nervosa, compulsive eating, obesity, and weight preoccupation; discussion of cultural and nutritional factors, family issues, and psychological consequences, as well as preventive and therapeutic interventions. Cooperative course taught by UI (FCS 405), open to WSU students.

416 Food Microbiology 2 Prereq introductory microbiology. Purpose for enumeration, detection and identification of microorganisms in food products; physical, chemical and environmental factors influencing growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms in food and their control. Cooperative course taught by UI (FST 416), open to WSU students.

417 Food Microbiology Laboratory 2 (0-6) Prereq c/c in FSHN 416. Methods of enumeration, detection and identification of spoilage and pathogenic microorganisms in foods. Cooperative course taught by UI (FST 417), open to WSU students.
Comparative Foods 2 Rec organic chemistry. Experimental foods taught by means of demonstrations; chemical and physical principles in the preparation of foods.

Food Quality Evaluation 3 (2-3) Prereq statistics course. Techniques in evaluation of quality of foods by sensory and instrumental methods. Cooperative course taught by WSU, open to UI students (FST 422).

Community Nutrition 3 Prereq FSHN 330, 331; Rec FSHN 436. Needs assessment, planning, and evaluation in community nutrition programs. Cooperative course taught jointly by WSU and UI (HE 473).

Nutritional Assessment 1 (0-3) Rec FSHN 233, senior standing. Basic skills and concepts for determining nutritional status of ambulatory adults using dietary intakes, dietary standards, anthropometric and biochemical measures.

Human Nutrition, Intermediary Metabolism 3 Prereq BC/BP 364, FSHN 330, Zool 251. Biochemical roles of nutrients and processes of intermediary metabolism affecting man’s need for food; integration of biochemical pathways of major and minor nutrients; important nutritional deficiencies, clinical conditions.

Prenatal, Infant and Child Nutrition 2 Prereq FSHN 331 or c/. Nutrition of the mother and fetus during pregnancy and of the child from infancy to adolescence.

M大树 [M] Agricultural Processing 3 Same as AgTM 433.

Agricultural Processing Lab 1 (0-3) Same as AgTM 433.

Medical Nutrition Therapy 3 Prereq FSHN 430 or c/. Nutrition principles applied to nutritional conditions in people.

Nutrition Education 3 Prereq FSHN 130, 233, or 331. Individual and group nutrition education programs; methods, resources, settings, and community structures for guiding change in nutritional behavior.

Medical Nutrition Therapy Laboratory 1 (0-3) Prereq c/ in FSHN 435. Nutritional care planning; modified diets; nutritional assessment and dietary analysis in clinical care settings.

Readings in Foods and Nutrition 2 Prereq FSHN 480 or c/. Reports, discussions and reviews of recent scientific literature and developments in foods and food systems management. Credit not granted for both FSHN 438 and 538.

Current Topics in Nutrition 2 Prereq FSHN 430. Analysis of scientific, popular and legislative articles pertaining to topics of current interest in nutrition. Credit not granted for both FSHN 439 and 539.

Advanced Medical Nutrition Therapy 3 By interview only. Advanced nutrition principles applied to pathological conditions in humans and principles of participation in delivery of nutritional care.

Food Fermentations 3 (2-3) Prereq Chem 240, Micro 301; Rec BC/BP 364. Principles and procedures of fermentation of fruits and vegetables, meat products, and dairy products. Credit not granted for both FSHN 450 and 550. Cooperative course taught by WSU, open to UI students (FST 450).

Food Chemistry 3 Prereq biochem, Chem 240; Rec BC/BP 364. Fundamentals of food chemistry; composition of foods and the changes that occur during processing. Cooperative course taught by WSU, open to UI students (FST 460).

Food Chemistry Laboratory 1 (0-3) Rec FSHN 460 or c/. Experiments related to the properties, reactions, and interactions of chemical components of foods. Cooperative course taught by WSU, open to UI students (FST 461).

Food Analysis 4 (2-6) Prereq microbiology, organic chemistry. Introductory food analysis; methods common to many food commodities. Cooperative course taught by WSU, open to UI students (FST 462).

Advanced Food Technology 3 Prereq FSHN 416, 433 or c/. Physical principles of food preservation and recent advances in food technology. Credit not granted for both FSHN 470 and 570. Cooperative course taught by WSU, open to UI students (FST 470).

Supervised Practice in Diabetics I 3 (0-9) By interview only. Students in CUOGD programs receive supervised practical experience each semester during the junior and senior years.

Supervised Practice in Diabetics II 3 (0-9) Prereq FSHN 475. Students in CUOGD programs receive supervised practical experience each semester during the junior and senior years.

Supervised Practice in Diabetics III 8 (0-24) Prereq FSHN 476. Students in CUOGD programs receive supervised practical experience each semester during the junior and senior years.

Management in Food Service Systems I 3 Prereq FSHN 380. Management techniques, communication, financial planning, and equipment in food service systems.

Clinical Experience in Food Service Systems 2 (1-3) By interview only. Experience in food systems management in clinical settings.

Internship in Food Science and Human Nutrition 2 May be repeated for credit; cumulative maximum 4 hours. Prereq sophomore standing. Students work full time in industrial assignments with prior approval of advisor and industrial supervisor. S, F grading.

Food Practicum V 1 (0-3) to 8 (0-24) May be repeated for credit; cumulative maximum 8 hours. Prereq junior standing. Supervised experiences of working in one or more food-related businesses, organizations, and agencies. S, F grading.

Special Problems V 1-4 May be repeated for credit. S, F grading.

Topics in Food Science and Human Nutrition V 1-3 May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of FSHN 401; additional requirements. Credit not granted for both FSHN 401 and 501.

Advanced Human Nutrition 3 Scientific basis of human nutrient requirements, dietary allowances and assessment techniques. Cooperative course taught by WSU, open to UI students (FCS 514).

Seminar Written 2 May be repeated for credit. Planning, writing, reporting, reviewing and evaluating current food-related research.

Seminar Oral 1 May be repeated for credit. Development of skills and communication tools and techniques for oral presentations of current food science and human nutrition research.

Advanced Food Chemistry 3 Rec biochemistry, food chemistry. Chemical, physical, and toxicological properties of water, vitamins, pigments, synthetic colors, minerals, miscellaneous food additives, and natural toxicants. Cooperative course taught by WSU, open to UI students (FST 510B).

Food Carbohydrates, and Lipids 3 Rec biochemistry, food chemistry. Occurrence, structure, chemical and physical properties; and functions of carbohydrates and lipids, in foods. Cooperative course taught by WSU, open to UI students (FST 512).

Food Proteins and Enzymes 2 Prereq biochemistry, food chemistry (FSHN 460). Chemistry/biochemistry of proteins/enzymes applied to food research and industry; protein functionality/enzyme technology application to food industry. Cooperative course taught by WSU, open to UI students (FST 513).

Mineral and Vitamin Metabolism 4 Same as BSA 513.

Research Methods in Behavioral Nutrition 3 Prereq FSHN 130 or 233; Rec FSHN 426 or 436; statistics course. The application of behavioral theories and qualitative/quantitative methods of data collection to behavioral nutrition research. Cooperative course taught by WSU, open to UI students (FCS 520).

Research Techniques in Nutrition 3 (1-6) Rec 6 hours 300-400-level nutrition. Methods of conducting field, applied and metabolic studies in human nutrition.

Food Quality Evaluation 3 (2-3) Prereq 300-400-level statistics course. Advanced studies of psychophysical testing sensory and instrumental analysis of foods and multivariate statistical analysis of sensory data. Cooperative course taught by UI (FST 522), open to WSU students.

Advanced Community Nutrition 3 Rec 300-400-level nutrition course; by interview only. Components of community nutrition programs—needs assessment, planning, evaluation, application of concepts to case studies. Cooperative course taught by WSU; open to UI students (FCS 526).

Nutrition and Aging 2 Rec 300-400-level nutrition course; by interview only. Assessment, evaluation, and treatment of nutritional problems of the aged.

Pathophysiology of Human Nutrition 3 Rec BC/BP 364; FSHN 435; Zool 353. Protein, fat, carbohydrate and other nutrient pathophysiology in the development and treatment of major human diseases.

Readings in Foods and Nutrition 2 Graduate-level counterpart of FSHN 438; additional requirements. Credit not granted for both FSHN 438 and 538.

Current Topics in Nutrition 2 Graduate-level counterpart of FSHN 439; additional requirements. Credit not granted for both FSHN 439 and 539.

Food Fermentations 3 (2-3) Graduate-level counterpart of FSHN 450; additional requirements. Credit not granted for both FSHN 450 and 550. Cooperative course taught by WSU, open to UI students (FST 550).
561 Sports Nutrition 3 Prereq by interview only. Macronutrient and selected micronutrient utilization during exercise and restoration after feeding, dietary surveys of athletes, dietary ergogenic aids and discussion of the origins of dietary recommendations for athletes. Cooperative course taught by UI (FCS 561), open to WSU students.

570 Advanced Food Technology 3 Graduate-level counterpart of FSHN 470; additional requirements. Credit not granted for both FSHN 470 and 570. Cooperative course taught by WSU, open to UI students (FST 570).

575 Supervised Practice V 2-18 May be repeated for credit; cumulative maximum 18 hours. Rec by interview only. Professional supervised experience in administrative, clinical, and community dietetics; meets American Dietetic Association requirements for registration eligibility. S, F grading.

583 Advances in Cereal Science and Technology 2 Prereq BC/BP 364. Background information, review of recent advances; relation to processing, and use properties and marketing.

587 Food Process Engineering Design 3 Same as FCS 587

598 Foods/Nutrition Practicum V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Rec by interview only. Professional-level supervised field experience in food and/or nutrition. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Degree Program Requirements

At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses.

A minimum of 30-36 hours beyond the 203 level (or the equivalent level in competence) in the major language is required for a Bachelor of Arts degree in Foreign Languages and Literatures. In addition, each major must present either (1) competence in a second foreign language, up to and including 304 or the equivalent level in competence, and (2) an approved university minor or teaching minor, or a second major in another field.

In the junior and senior years students should take from 2 to 8 hours in their major language each semester as their individual program requires.

No course in which a C- or lower grade is earned will be counted toward the major or minor. Upper-division courses taken pass, fail may not be included for credit toward the major. No course may count for both the major and the minor.

Majors and prospective majors are strongly encouraged to spend at least one semester abroad, living in the target culture and enhancing their fluency. Many accredited study abroad programs are available; students should work with their advisors in the selection of a program.

Of the 30-36 hours required for the major, a minimum of 15 must be taken in residence or in an approved study abroad program. Additionally, German majors must take a minimum of 6 hours at the 400 level in residence; Spanish majors must take at least two 3-hour Spanish literature courses; and French majors at least two 3-hour French literature courses, in residence.

FRENCH DEGREE PROGRAM (120 HOURS)

Students may earn equivalent credit in approved study abroad programs.

Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Fren 101, if necessary, or Elective¹</td>
<td>4</td>
</tr>
<tr>
<td>Fren 315, 316, or 416</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency N] (GER)</td>
<td>3 or 4</td>
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Second Semester

<table>
<thead>
<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Fren 102, if necessary, or Elective¹</td>
</tr>
<tr>
<td>Fren 315, 316, or 416</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
</tr>
<tr>
<td>Science Elective (GER)²</td>
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<tr>
<td>Tier I Science [Q] (GER)²</td>
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Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Fren 203, if necessary, or Elective¹</td>
<td>4</td>
</tr>
<tr>
<td>Elective¹</td>
<td>3</td>
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Second Semester

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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological [B] Sciences (GER)</td>
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<tr>
<td>Fren 304</td>
</tr>
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<td>Elective¹</td>
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Junior Year

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<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Fren 307 or 407</td>
<td>3</td>
</tr>
<tr>
<td>Fren 320 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Physical [P] Sciences (GER)</td>
<td>4</td>
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<tr>
<td>Elective¹</td>
<td>3</td>
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<tr>
<td>Complete Writing Portfolio</td>
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Second Semester

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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
</tr>
<tr>
<td>Fren 308 [M] or 408 [M]</td>
</tr>
<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>Elective¹</td>
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Senior Year

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<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Fren 409</td>
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</tr>
<tr>
<td>One from: Fren 306, 310, 407, or 408</td>
<td>3</td>
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<tr>
<td>One from: Fren 420, 421, 422, 423, 424, 425, or 427</td>
<td>3</td>
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<tr>
<td>Elective¹</td>
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Second Semester

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<tbody>
<tr>
<td>One from: Fren 306, 310, 407, or 408</td>
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<tr>
<td>One from: Fren 420, 421, 422, 423, 424, 425, or 427</td>
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<tr>
<td>Tier III Capstone (GER)</td>
</tr>
<tr>
<td>Electives¹</td>
</tr>
</tbody>
</table>

¹ Electives must be represented by competence in a second foreign language, up to and including 304, and an approved university minor or teaching minor, or a second major in another field.

² Students may substitute one 4-credit Tier I Sci-
Students may substitute one 4-credit Tier I Science Elective for both the 3-credit Tier I Science and 1-credit Science Elective.

GERMAN DEGREE PROGRAM (121 HOURS)

First Semester
- Arts & Humanities [H,G] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3 or 4
- Ger 101, if necessary, or Elective 4

Second Semester
- Communication Proficiency [C,W] (GER) 3
- GenEd 111 [A] (GER) 3
- Ger 102, if necessary, or Elective 4
- Science Elective [B,P] (GER) 1
- Tier 1 Science [Q] (GER) 3

Sophomore Year
- First Semester
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - Ger 203 4
  - Physical [P] Sciences (GER) 4
  - Elective 3
- Second Semester
  - Biological Sciences [B] (GER) 4
  - Intercultural [I,G,K] (GER) 3
  - Ger 304 4
  - Ger 317 3
  - Elective 2

Junior Year
- First Semester
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - Ger 310 3
  - One from: Ger 315, 320, 322, 422, 423, 424, 425, 426, or 427 [M] 3
  - Electives 6
- Second Semester
  - Ger 305 1
  - Ger 310, 312, or 412 [M] 3
  - One from: Ger 315, 320, 322, 422, 423, 424, 425, 426, or 427 [M] 3
  - Social Science [S,K] (GER) 3
  - Electives 5

Senior Year
- First Semester
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - One from Ger 315, 320, 322, 422, 423, 424, 425, 426, or 427 [M] 6
  - Electives 6
- Second Semester
  - One from Ger 315, 320, 322, 422, 423, 424, 425, 426, or 427 [M] 3
  - Tier III Capstone (GER) 3
  - Electives 9

Students may substitute one 4-credit Tier I Science Elective for both the 3-credit Tier I Science and 1-credit Science Elective.

RUSSIAN DEGREE PROGRAM (120 HOURS)

First Semester
- Arts & Humanities [H,G] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3 or 4
- Spanish Literature Elective 3

Second Semester
- Biological [B] Sciences (GER) 4
- Communication Proficiency [C,W] (GER) 3
- GenEd 111 [A] (GER) 3

Sophomore Year
- First Semester
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - Ger 203, if necessary, or Elective 4
  - Span 315 (or 316 in spring) 3
  - Electives 4
- Second Semester
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - Physical [P] Sciences (GER) 4
  - Social Sciences [S,K] (GER) 3
  - Span 304 4
  - Spanish Literature Elective 6

Junior Year
- First Semester
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - Span 307 3
  - Span 308 2
  - Electives 6
- Second Semester
  - Intercultural [I,G,K] (GER) 3
  - Two from: Span 311, 320, 407, 408 6
  - Electives 6

Senior Year
- First Semester
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - One from: Span 424, 425, 426, 427, 434, 435, or 436. 3
  - Electives 3

Second Semester
- One from: Span 424, 425, 426, 427, 434, 435, or 436. 3
- Tier III Capstone (GER) 3

Minimal Requirements for Each Minor

To fulfill requirements for a minor in French, Ger-
man, Russian, or Spanish, a student must present a minimum of 16 hours of course work in one language area. In addition, a minimum of 9 hours beyond the 304-level is required. At least 6 of these hours must be in the target language, and at least 3 of the target language hours must be taken on a WSU campus. Fren 305, 306, Span 323, 324 may not be included in the minor. Upper-division courses taken pass, fail may not be included for credit toward the minor. No course may be repeated for credit toward the minor. No course may count for both the major and the minor.

Minor in Danish
The student must earn a minimum of 16 total hours in the language area, which may include credit for advanced standing or transfer credit of courses through 304. Six hours of the course work in the language area above the 304 level must be taken in residence. These 6 hours must include at least 3 credit hours in the target language. Upper-division courses (300 and above) graded pass, fail may not be included for credit toward the minor. Since advanced courses in Danish are taught under For L 300, the student is required to obtain written certification from the instructor that 6 hours of course work is above the 304 level.

Minor in French Area Studies
Both options in the minor require a minimum of 23 credit hours, chosen according to the following schedule of studies.

8 hours of 300-400-level Fren courses from: Fren 306, 307, 308, 320, 322, 327; Fren 315 (for French Area Studies Option) or Fren 316 (for Francophone Area Studies Option); 12 additional hours from: Anth 350, 450, 456, Arch 324, 425, CAC 227*, 438*, Drama 365, 366, F A 201, 202, 303, 304, Hist 312*, 446, 447, 448, 449, 450, 461, Mus 360, 361, Phil 220, 305, 310, 325, 420, Pol S 432, 447, 472.*Students choosing Francophone Area Studies Option must take these courses.

Minor in German Area Studies
The minor in German Area Studies requires 18 hours, at least 9 of which must be 300-400-level including Ger 312, 317, Hist 468; 9 credits from: Hist 448, 449, 450; Pol S 472 (in courses covering a broader geographical area than Germany, Austria and Switzerland, the student is expected to ask the professor for a German Area Studies topic for the semester project or term paper); a student paper on German Area Studies-related topic (it may be a paper from one of the above courses) submitted to the German Area Studies faculty. (Also strongly recommended: Hist 102).

Minor in Japanese Studies
The minor in Japanese Studies requires 22 hours: Japn 101, 102, 203, 304, plus two courses from the following: Hist/Asia 374, 477; Phil/Asia 315; Pol S/Asia 436. A minimum of 4 hours of language, and 3 hours of electives must be taken at WSU.

Minor in Latin American Area Studies
The minor in Latin American Area Studies requires 20 hours, at least 8 of which are 300-400-level. Eight of the total hours must be in Spanish language courses. Courses may be chosen from: Ag Ec 420; Anth 331, 428; CAC 151, 255, 354; CropS 360; Econ 470, 472; Hist 230, 231, 331, 430, 432, 433, 434; Pol S 413, 435; Span 323, 416, 434, 435.

Minor in Russian Area Studies
The minor in Russian Area Studies requires 20 hours, at least 8 of which must be 300-400-level. Option 1: Russia through the 19th Century; Hist 462; Rus 101, 102, 315. Option 2: Russia in the 20th Century: Hist 463; Rus 101, 102, 317. Both options require two additional courses from: Econ 416, Hist 465, Pol S 102, 333, Rus 323. The required courses in the option not chosen may also serve as electives. Except for Rus 101 and 102, all courses are taught in English.

Minor in Scandinavian Area Studies
The minor in Scandinavian Area Studies requires 20 hours, at least 8 of which are 300-400-level including Hist 348; For L 300, Scand 101, 102, 323, 499; Soc 391. Students may apply up to 10 hours of approved study abroad course work toward the minor.

INTERNATIONAL BUSINESS OPTION
The international business area studies curriculum combines a major in foreign languages with core courses in business. Complete details are available from the department. Through careful choice of electives and of courses meeting General Education Requirements, a student may obtain sufficient concentration to prepare for graduate study in several fields or to enhance a wide variety of career possibilities.

TEACHER-TRAINING PROGRAM
Students preparing to teach should consult the catalog listing of the Department of Teaching and Learning for certification requirements and for teaching majors and minors. Those who intend to major in foreign languages and education should begin the study of the major language in the first year of the minor language, if any, not later than the beginning of the second year.

Preparation for Graduate Study
Students who contemplate graduate work in the Department of Foreign Languages and Literatures should present an undergraduate degree similar to those described in the above schedule of studies. Complete details on graduate programs are available from the chair of the department.

Description of Courses

Foreign Languages and Literatures

For L
300 Studies in Foreign Languages V 1-4 May be repeated for credit. Languages not currently a part of the curriculum may be offered on demand. Cooperative course taught by WSU, open to UI students (FL 344).
315 Topics in Canadian Studies 1 May be repeated for credit; cumulative maximum 5 hours. Same as Hist 315.
340 Methods of Teaching Foreign Languages 3 Prereq two years foreign language. Survey of current methodology with emphasis on practical application in the classroom.
350 [S] Speech, Thought, and Culture 3 Same as Anth 350.

444 Instructional Technology for Foreign Language Learning 3 Prereq For L 340. The use of technology in the foreign language classroom; hands-on experience with equipment and multimedia materials. Credit not granted for both For L 444 and 544.
450 Descriptive Linguistics I 3 Same as Anth 450.
474 Secondary School Foreign Language Methods 3 Prereq two years foreign language. Specific methods, research, curricula, and media in teaching secondary school foreign language. Cooperative course taught by UI (Ed 474), open to WSU students.
495 Cooperative Education Internship V 2-6 May be repeated for credit; cumulative maximum 6 hours. Off-campus cooperative education internship with business, industry, or government unit. S, F grading.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
544 Instructional Technology for Foreign Language Learning 3 Graduate-level counterpart of For L 444; additional requirements. Credit not granted for both For L 444 and 544.
597 Seminar in Scholarly Methodology 2 Bibliography and formal aspects of scholarly writing; general introduction to literary criticism.
600 Special Projects or Independent Study Variable credit. S, F grading.
702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Chinese

Chin
101 First Semester 4 Fundamentals of speaking, reading, and writing. Cooperative course taught by WSU, open to UI students (FL/CH 101).
102 Second Semester 4 Prereq Chin 101. Continuation of Chin 101. Cooperative course taught by WSU, open to UI students (FL/CH 102).
303 Third Semester 4 Prereq Chin 102. Chinese literature through reading of selected masterpieces: Chinese used as medium of communication.

Classics

Clas
101 Beginning Latin 4 For students who have had no Latin or who need a review course before taking advanced work.
102 Selections from Latin Prose and Poetry 4 Prereq Clas 101.
341 Elementary Greek 4 Pronunciation, vocabulary, reading, and functional grammar. Cooperative course taught by UI (FL/GK 341), open to WSU students.
342 Elementary Greek 4 Pronunciation, vocabulary, reading, and functional grammar. Cooperative course taught by UI (FL/GK 342), open to WSU students.

*Not open to native speakers except with permission. Bilingual speakers should consult departmental guidelines for proper placement.
349 Greek Language Lab 1 May be repeated for credit; cumulative maximum 2 hours. Basic skills. S, F grading. Cooperative course taught by UI (FL/GK 349), open to WSU students.

365 Survey of Latin Literature 3 From early Latin to the Middle Ages. Cooperative course taught by UI (FL/LA 365), open to WSU students.

366 Survey of Latin Literature 3 From early Latin to the Middle Ages. Cooperative course taught by UI (FL/ LA 366), open to WSU students.

369 Latin Language Lab 1 May be repeated for credit; cumulative maximum 2 hours. Prereq permission. Advanced-level expressive skills. S, F grading. Cooperative course taught by UI (FL/ LA 369), open to WSU students.

404 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Cooperative course taught by UI (FL/GK 404), open to WSU students.

411 Intermediate Greek 4 Readings in classical Greek prose and poetry. Cooperative course taught by UI (FL/GK 411), open to WSU students.

412 Intermediate Greek 4 Readings in classical Greek prose and poetry. Cooperative course taught by UI (FL/GK 412), open to WSU students.

461 Latin Literature of the Augustan Age 3 Cooperative course taught by UI (FL/ LA 461), open to WSU students.

462 Latin Literature of the Augustan Age 3 Cooperative course taught by UI (FL/ LA 462), open to WSU students.

463 Latin Literature of the Republic 3 Cooperative course taught by UI (FL/ LA 463), open to WSU students.

464 Latin Literature of the Republic 3 Cooperative course taught by UI (FL/ LA 464), open to WSU students.

465 Latin Literature of the Silver Age 3 Cooperative course taught by UI (FL/ LA 465), open to WSU students.

466 Latin Literature of the Silver Age 3 Cooperative course taught by UI (FL/ LA 466), open to WSU students.

306 French for Reading Proficiency 2 Prereq Fren 304. Vocabulary building, contrasting English-French grammar, development of skills to increase reading speed and fluency.

307 Speaking Proficiency 3 Prereq Fren 304. Systematic development of speaking.1

308 [M] Composition 3 Prereq Fren 304. Systematic practice in writing.1

310 French for the Professions 3 Prereq Fren 304. Communication in French for professional purposes; telephone and meeting role-plays, letter-writing, television, discussions of current events in the Francophone world.

315 [H] French Civilization and Culture 3 Cultural history of France from beginnings to present; comparison of French and American values in English.

316 [I] French Civilization and the Francophone World 3 Study of relationship between France and its former colonies from a global perspective; complements Fren 315; readings, lectures, and discussions in English.

318 Topics in French Civilization—Study Abroad 3

320 [H] [M] Survey of French Literature to 1700 3 Prereq Fren 304. Works studied from the Middle Ages and Renaissance include the epic poem, courtly romance, fabliau, drama, and lyric poetry.

322 [H] [M] Survey of French Literature After 1700 3 Prereq Fren 304. Development of competence and written expression through study of great works of these times.

327 Special Topics—Study Abroad 3 (Avignon)

416 Seminar in French Civilization 3 May be repeated for credit; cumulative maximum 6 hours.

418 Topics in French Civilization—Study Abroad V 1-4 (Avignon)

420 Medieval French Literature 3 Prereq Fren 320 or 322. In-depth study of selected works by medieval authors, including, among others, Chrétien de Troyes, Marie de France, François Villon.

421 French Literature of the Renaissance 3 Prereq Fren 320 or 322. In-depth study of selected works from the late 14th through the 16th centuries, including poetry, essays, stories, and philosophical texts.

422 Literature of the Classical Period 3 Prereq Fren 320 or 322. Authors and works from the 17th century, including Corneille, Racine, and Molière.

423 Literature of the Enlightenment 3 Prereq Fren 320 or 322. Authors and works from the 18th century, including Montesquieu, Voltaire, Diderot, and Rousseau.

424 French Literature of the 19th Century 3 Prereq Fren 320 or 322. Authors and works from the Romantic, Realist, Naturalist, and Symbolist Schools.

425 French Literature of the 20th Century 3 Prereq Fren 320 or 322. Authors and works from the pre-WWI, pre-WWII, post-war, and contemporary periods.

427 Seminar in French Language or Literature 3 May be repeated for credit. Prereq Fren 320 or 322.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

German

Ger

101 First Semester 4 Fundamentals of speaking, reading, and writing.1

102 Second Semester 4 Prereq Ger 101. Continued development of basic skills in speaking, reading, and writing.1

103 Third Semester 4 Prereq Ger 102. Grammar review and further development of speaking, reading, and writing skills.1

104 Intermediate 4 Prereq Ger 203. Continued practice in spoken and written language; selected texts in a cultural context.1

105 Conversation 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. Prereq Fren 304. Conversation practice in small groups.1

1Not open to native speakers except with permission. Bilingual speakers should consult departmental guidelines for proper placement.
Department of Foreign Languages and Literatures

426 [M] German Literature from the First World War to the Present 3 Prereq Ger 320 or 322. The works of Hesse, Mann, Brecht, Zuckmayer, Grass, Durrenmatt, Frisch, and others.

427 Seminar in German Language or Literature 3 May be repeated for credit. Prereq Ger 320 or 322.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Italian

Ital

101 First Semester—Study Abroad V 3-6 Introductory Italian. (Siena).1

102 Second Semester—Study Abroad V 3-6 Prereq Ital 101. Continuation of Ital 101. (Siena).2

203 Third Semester—Study Abroad V 3-6 Prereq Ital 102. Continuation of Ital 102; grammar review, further development of speaking, reading, and writing skills. (Siena).3

318 Topics—Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours. (Siena).

Japanese

Japn

101 First Semester 4 Fundamentals of speaking, reading, and writing. Cooperative course taught by WSU, open to UI students (FL/JP 203).1

102 Second Semester 4 Prereq Japn 101. Continuation of Japn 101. Cooperative course taught by WSU, open to UI students (FL/JP 102).1

303 Third Semester 4 Prereq Japn 102 Conversazione and reading of selected texts. Cooperative course taught by WSU, open to UI students (FL/JP 203).1

304 Intermediate 4 Prereq Japn 303. Continued practice in spoken and written language; selected texts in a cultural context. Cooperative course taught by WSU, open to UI students (FL/JP 304).1

318 Topics in Japanese—Study Abroad 12 Prereq Japn 303. Equivalent to fourth and fifth semesters of language study plus 4 credits of culture study (Tokyo).

Russian

Rus

101 First Semester 4 Fundamentals of speaking, reading, and writing. Cooperative course taught by WSU, open to UI students (FL/RU 101).1

102 Second Semester 4 Prereq Rus 101. Continued development of basic skills in speaking, reading, and writing. Cooperative course taught by WSU, open to UI students (FL/RU 102).1

203 Third Semester 4 Prereq Rus 102. Grammar review and further development of speaking, reading, and writing skills. Cooperative course taught by WSU, open to UI students (FL/RU 203).1

304 Intermediate 4 Prereq Rus 203. Continued practice in spoken and written language; selected texts in a cultural context. Cooperative course taught by WSU, open to UI students (FL/RU 304).1

305 Conversation 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. Prereq Rus 304. Conversation practice in small groups. Cooperative course taught by WSU, open to UI students (FL/RU 305).1

311 [M] Seminar in Russian Language 3 Prereq Rus 304. May be repeated for credit, cumulative maximum 6 hours. Application and elaboration of the basic syntactic and stylistic principles of the language. Taught in Russian.

315 Russian Civilization 3 Russian culture to 1917; readings, lectures, and discussions in English.

317 [G] Contemporary Russian Culture and Society 3 Readings, lectures, and discussions in English; current cultural and social trends in the former USSR.

318 Topics in Russian Study Abroad 4 Prereq Rus 304. (Vladivostok).

320 [M] Topics in Russian Literature 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Rus 304. Reading course shifting emphasis from language to literature.

323 [H] Masterpieces of Russian Literature in Translation 3 The masterpieces of the great Russian and Soviet writers of the 19th and 20th centuries. Taught in English.

424 Seminar in Russian Literature Prereq Rus 320. Selected works from the 19th century. Taught in Russian.


430 [H] St. Petersburg 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. The image and role of St. Petersburg in Russian and world classics in literature, art, music, and film.

Scandinavian

Scand

101 First Semester Danish 4 Introduction to Danish; fundamentals of speaking, reading, and writing.3

102 Second Semester Danish 4 Prereq Scand 101. Intermediate Danish; continued development of the basic communicative skills in speaking, reading, and writing.2

323 Masterpieces of Scandinavian Literature in Translation 2 May be repeated for credit; cumulative maximum 6 hours. Topics in Scandinavian literature from the Icelandic sagas to the present.

490 Topics in Scandinavian Studies V 1-3 May be repeated for credit. S, F grading.

Spanish

Span

101 First Semester 4 Fundamentals of speaking, reading, and writing.3

102 Second Semester 4 Prereq Span 101. Continued development of basic skills in speaking, reading, and writing.3

130 Beginning Spanish—Study Abroad V 1-12 Equivalent to Span 304, 306, 307, 308.

304 Intermediate 4 Prereq Span 203. Continued practice in spoken and written language; selected texts in a cultural context.1

305 Spanish Conversation 1 May be repeated for credit; cumulative maximum 4 hours. Prereq Span 304. Conversation practice in small groups. S, F grading.

306 Spanish for Reading Proficiency 2 Prereq Span 203. Vocabulary building, contrastive English-Spanish grammar, development of skills to increase reading speed and fluency.

307 Speaking Proficiency 3 Prereq Span 304. Systematic development of speaking; pronunciation of basic Spanish sounds.1


310 Spanish for the Professions 3 Prereq Span 203. Special topics in language and culture for the professions.

311 Advanced Grammar 3 Prereq Span 304. Recommended for those intending to take the upper-level composition or conversation courses.

315 [H] Hispanic Civilization 3 Spanish culture with lectures and readings in English.

316 [G] Hispanic American Culture 3 Contemporary social, political, and cultural issues. Taught in English.


323 Masterpieces of Spanish American Literature in Translation 3 Twentieth century literary works that reflect Spanish America’s social diversity, nonwestern tradition, and artistic achievements. Taught in English.

324 Spanish for Spanish Speakers 3 Prereq fluency in Spanish. Teachings of Chicano and Mexican writers; popular culture, composition, grammar, indicative mood and vocabulary.


391 Hispanic Film 3 Genre, structure and style of representative fiction and nonfiction films of Spain and Latin America. Cooperative course taught by UI (FL/SP 391), open to WSU students.

407 Advanced Practice in Speaking Proficiency 3 Prereq Span 307. Systematic development of oral skills on the advanced level, including delivery of brief formal presentations involving specialized vocabulary.1

408 [M] Advanced Composition 2 Prereq Span 308. Development of advanced proficiency in writing.1

424 Spanish Literature of the 19th Century 3 Prereq Span 320. Drama, poetry, the short story, the costumbrista sketch, and novel in 19th century Spain.

425 Spanish Literature of the 20th Century 3 Prereq Span 320. Reading and discussion of representative works by Peninsular writers of the 20th century.

427 Seminar in Spanish Language or Literature 3 May be repeated for credit. Prereq Span 320.

430 Advanced Spanish—Study Abroad V 1-12 Equivalent to Span 311, 407, 408.

434 Spanish American Literature of the 19th Century 3 Prereq Span 320. Reading and discussion of representative works by Spanish American writers of the 19th century.


499 Special Problems V 1-4 May be repeated for credit. S, F grading.

520 Medieval Literature 3 Selected works.

521 [S24] Cervantes 3 Quixote plus selected critical works.1

1Not open to native speakers except with permission. Bilingual speakers should consult departmental guidelines for proper placement.
General Studies Program

General studies is for students who have varied interests that may cut across the usual departmental boundaries and who wish to play a major role in deciding on a suitable curriculum of study. The student earns a Bachelor of Arts in Humanities, Bachelor of Arts in Social Sciences, Bachelor of Science, or Bachelor of Liberal Arts degree depending upon the program selected. The degree is not identified with a special subject-matter field on the diploma.

Total credits for graduation of 120 semester hours should include 40 credits or more in courses at the 300-400 level. Students who wish to enroll in general studies should contact the appropriate coordinator listed below under the various divisions.

Description of course

General Studies
GenSt
400 General Studies Portfolio 1 Prereq senior standing. Evaluating one’s educational experience and presenting that evaluation in written form. S, F grading.

Biological, Mathematical, and Physical Sciences

B. Lentz, Coordinator

This division of general studies is for students who are interested in interdisciplinary programs in science or mathematics which offer broader options in course selections than are possible within single departments. Students who wish to earn a Bachelor of Science degree will devise an approved, coherent program of study with the coordinator which fulfills an academic or career goal and includes prerequisites consistent with the 300-400-level major course work. In addition, each student will satisfy the General Education Requirements and any additional requirements of the College of Sciences.

Plan A—Major/Minor Concentration

Major concentration: a minimum of 24 semester credits, including at least 15 300-400-level credits, must be completed in biological sciences, in mathematics or in a single physical science with a minimum 2.00 major concentration g.p.a. Students who complete one of the above major concentrations will receive a Bachelor of Science degree with a major concentration in general biological sciences (Gen B), general mathematics (Gen M) or general physical sciences (Gen P).

Minor concentration: a minimum of 15 semester credits, including at least 6 300-400-level credits, must be completed in another academic department, program or area published in the catalog with a minimum 2.0 minor concentration g.p.a.

Plan B—Three Related Areas in Biological Sciences

A combination of biological sciences courses of at least 39 credits in three or more departments or programs including at least 9 credits in each department or program and 21 300-400-level hours must be completed with at least a 2.0 g.p.a in these courses. The related areas in general biological sciences (Gen B) include biology, biochemistry, botany, genetics and cell biology, microbiology, zoology and approved biology-based courses in agriculture. Students who complete a Plan B curriculum receive a Bachelor of Science degree with a major concentration in general biological sciences (Gen B).

Plan C—Three Related Areas in Physical Sciences

A combination of physical sciences and mathematics courses of at least 39 credits in three or more departments or programs including at least 9 credits in each department or program and 21 300-400-level hours must be completed with at least a 2.0 g.p.a. in these courses. The related areas in mathematical and physical sciences include chemistry, computer science, geology, mathematics, pharmacy, physics, and math/science-based engineering courses. Students who complete a Plan C curriculum receive a Bachelor of Science degree with a major concentration in general physical sciences (Gen P).

Prerequisite Courses

General Biological Sciences (Gen B): One year biology, one semester introductory calculus, one year general chemistry, and one semester organic chemistry.

General Physical Sciences (Gen P): One year calculus, one year calculus-based physics, and one year general chemistry. (Students who plan a major concentration in chemistry should also include quantitative or organic chemistry. Physical geology is a prerequisite for 300-400-level geology courses.)

General Mathematics (Gen M): Three semesters of calculus and linear algebra.

Classical Studies

R. S. Williams, Coordinator

The classical studies option is designed for students who wish to obtain a broad understanding of the ancient Greek and Roman foundations of modern western civilization. Greek and Latin language study is an important part of the program in order to aid comprehension of classical thought, literature, and history. This major should be of great value for students contemplating careers in medicine, law, and business or graduate work in history, archaeology, or literature. It is not suitable for those who wish to teach Latin or Greek or enter graduate school in classics unless additional language study is undertaken. The approach is interdisciplinary and flexible to allow students to pursue varied interests within a broad field. Students who major in classical studies will earn a Bachelor of Arts in Humanities degree.
GENERAL STUDIES CLASSIC STUDIES DEGREE PROGRAM (120 HOURS)

Each student must complete (1) the General Education Requirements and any additional requirements of the College of Sciences and Arts, (2) 120 semester hours which include 40 or more at the 300-400 level, (3) a second year (or its equivalent) of Greek or Latin language, which may be completed at the University of Idaho.

Freshman Year
First Semester
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3
- Science Elective¹ 1
- Tier I Science [Q] (GER)² 3

Second Semester
- Biological Sciences [B] (GER) 4
- Clas 101 or 341 4
- Communication Proficiency [C,W] (GER) 3
- F A 201 [H] (GER) 3
- GenEd 111 [A] (GER) 3

Sophomore Year
First Semester
- Clas Language Elective² 4
- Hum 101 [H] (GER) 3
- Physical Sciences [P] (GER) 4
- Social Sciences [S,K] (GER) 3

Second Semester
- Clas Language Elective² 4
- Hist 341 [H] (GER) 3
- Hum 103 [H] (GER) 3
- Phil 290 [H] (GER) 3
- Approved 300-400-level Elective¹ 3

Junior Year
First Semester
- Clas Language Elective² 4
- Hist 340 [H] (GER) 3
- Approved 300-400-level Elective¹ 3
- 300-400-level Electives 6
- Complete Writing Portfolio

Second Semester
- Intercultural [I,G,K] (GER) 3
- Approved 300-400-level Electives¹ 6
- 300-400-level Electives 6

Senior Year
First Semester
- Approved 300-400-level Electives¹ 6
- 300-400-level Electives 6
- Electives 3

Second Semester
- Tier III Capstone (GER) 3
- Electives 11

¹ Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and 1-credit Science Elective.
² Students must complete a second year (or its equivalent) of Greek or Latin language, which may be completed at the University of Idaho.

Additional Greek and Latin beyond the basic language requirements, appropriate seminars, special offerings, and independent study from associated departments must be selected with the approval of the coordinator of the classical studies option.

MINOR. Students wishing to minor in classical studies are required to take a minimum of 16 hours of course work, at least 8 of which are at the 300-level and above. Students are encouraged, but not required, to take a classical language.

Humanities and Social Sciences

B. Lentz, Coordinator

This division of general studies is for students whose primary interest in the humanities or social sciences requires interdisciplinary programs and course selections which are not possible within single academic programs or established curricula. Students who wish to earn a Bachelor of Arts in Humanities or a Bachelor of Arts in Social Sciences will devise an approved, coherent program of study with the coordinator who fulfills an academic or career goal and includes prerequisites consistent with the 300-400-level major course work. In addition, each student will satisfy the General Education Requirements and any additional requirements of the College of Liberal Arts.

Plan A—Major/Minor Concentration

Major concentration: a minimum of 24 semester credits, including at least 15 300-400-level credit, must be completed in a single humanities or social sciences department or published program with a minimum 2.00 major concentration g.p.a. The major (Gen H or Gen S) and the degree will depend on the major concentration.

Minor concentration: a minimum of 15 semester credits, including at least 6 300-400-level credits, must be completed in another academic department, program or area published in the catalog with a minimum 2.00 g.p.a.

Plan B—Three Related Areas in Humanities

A combination of humanities courses of at least 39 credits involving three or more academic departments or programs, with a minimum of 9 credits in each of the three areas including at least 21 300-400-level credits with at least a 2.00 g.p.a. in these courses. Students will major in general humanities (Gen H) and will receive a Bachelor of Arts in Humanities.

Plan C—Three Related Areas in Social Sciences

A combination of social sciences courses of at least 39 credits involving three or more academic departments or programs, with a minimum of 9 credits in each of the three areas including at least 21 300-400-level credits with at least a 2.00 g.p.a. in these courses. Students will major in general social sciences (Gen S) and will receive a Bachelor of Arts in Social Sciences.

Liberal Arts

J. Dollhausen, Coordinator

This option is available to students who have interests and motivations which go beyond the defined departmental boundaries. A student who chooses this option designs a major in consultation with the coordinator and two other faculty members. Students who major in liberal arts will earn the Bachelor of Liberal Arts degree.

The course of study will be outlined by the student, with the advice and assistance of the coordinator. Course work will be selected to provide a coherent body of knowledge culminating in a relevant thesis or senior project. As part of the requirement for completion of the degree, the student’s committee will meet to discuss and evaluate the project. All General Education Requirements of the university and the College of Sciences and Arts must be met, as described in the academic regulations.

A student may select the option upon completion of 30 or more semester hours, with the approval of the coordinator. Approval will be granted to those students who demonstrate a sincere motivation to accomplish in their unique course of study. Requests for the option are made in an informal interview with the coordinator. Normally, upon acceptance to the option, students should anticipate at least two semesters of course work before graduation.

LINGUISTICS

L. Gordon, Coordinator

A student majoring in linguistics may expect a broad liberal education in literature, anthropology, mathematics, and philosophy around a core of language. The student will gain a substantial familiarity with several languages and types of linguistic structure and will become conversant with the formal theories of linguistic analysis and the historical study of language. Students who major in linguistics will earn a Bachelor of Arts in Humanities degree.

The major in linguistics requires 40 credit hours, variously distributed in the following sequence, depending upon the particular emphasis which the student and advisor together select.

GENERAL STUDIES LINGUISTICS DEGREE PROGRAM (120 HOURS)

Freshman Year
First Semester
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3
- Science Elective¹ 1
- Tier I Science [Q] (GER)² 3

Second Semester
- Arts & Humanities [H,G] (GER) 3
- Biological Sciences [B] (GER) 4
- Communication Proficiency [C,W] (GER) 3
- GenEd 111 [A] (GER) 3
- Linguistics Elective² 3

Sophomore Year
First Semester
- Linguistics Elective² 3
- Math, Cpt S, or Stat Elective¹ 3
- Physical Sciences [P] (GER) 3
- Social Sciences [S,K] (GER) 3
- Elective 3

Second Semester
- Arts & Humanities [H,G] (GER) 3
- Linguistics Elective² 6
- Phil Elective¹ 3
- Elective 3

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Religious Studies

M. W. Myers, Coordinator

Religious studies is a cross-disciplinary program designed for students who wish to develop an understanding of the nature of religion and its role in individual and social life. The program enables students to analyze critically and evaluate western and non-western religions without a predisposition to defend or reject the claims of any particular faith. The program offers both a major and a minor; it is preparatory for careers and future study in international affairs, arts, humanities, social sciences, and intercultural studies. Students who major in religious studies will earn a Bachelor of Arts in Humanities degree.

A student may earn a major in religious studies by completing 39 semester hours of work from among the designated courses in the several departments involved. Of these 39 hours, 12 must consist of the core courses specified below for all majors. Further courses are specified as required or elective depending on the student’s focus: western religions, non-western religions, or comparative religions. There is also a language requirement.

A student must also satisfy the General Education and College of Sciences or College of Liberal Arts graduation requirements and take at least 40 of the total 120 semester hours in 300-400-level courses. For a minor in religious studies, a student must take at least 18 semester hours of work, including the core (minus the Seminar in Religious Studies) and three courses from the required list of comparative religion. Religious studies also makes an ideal second major.

### GENERAL STUDIES RELIGIOUS STUDIES DEGREE PROGRAM (120 HOURS)

#### Freshman Year

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<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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</tr>
<tr>
<td>Linguistics Elective</td>
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<tr>
<td>300-level Foreign Language Elective</td>
<td>3</td>
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<tr>
<td>Emphasis Elective</td>
<td>3</td>
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<td>Elective</td>
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<td>Complete Writing Portfolio</td>
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#### Second Semester

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<td>Intercultural [L,G,K] (GER)</td>
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<td>Linguistics Elective</td>
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#### Senior Year

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<th>Hours</th>
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<tr>
<td>300-400-level Electives</td>
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<table>
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<th>Second Semester</th>
<th>Hours</th>
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<td>Tier III Capstone (GER)</td>
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<td>300-400-level Electives</td>
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</table>

1 Students may substitute one four-credit Tier I Science for both the three-credit Tier I Science and one-credit Science Elective.
2 Students must take 21 hours or more, including at least one historical course: Anth 250, 350, 450, 456, 499; Engl 256, 254, 458, 499.
3 Students must take 3-12 hours depending upon special emphasis: Cpt S 150, 260, 405; Math 107, 171, 172, 201, 202; Stat 360.
4 Students must take 3-12 hours depending upon special emphasis: Phil 201, 320, 401, 410.
5 Students must take 6-18 hours depending on special emphasis. The 6-hour minimum, if elected, must be at the 300-level or higher.
6 Emphasis electives are chosen from the courses listed in the above footnotes to meet the required 40 credit hours.

### JUNIOR & SENIOR YEAR—CHOOSE ONE OF THE OPTIONS LISTED BELOW

#### Western Religions


- Non-Western Religions: Hist 273, Phil 314, 315, 407; six courses from: Anth 330, Hist 270, 275, 308, 370, 373, 374, 390, 408; Hum 103.


1 Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and 1-credit Science Elective.

### Teacher-Training

Students who are preparing to teach at the secondary level may in some cases receive their degrees in general studies. Such students must fulfill the requirements for graduation of the College of Sciences or College of Liberal Arts. There are no further requirements if they complete their teaching major and minor and fulfill all the requirements for teaching certification. The degree awarded is Bachelor of Arts in Humanities, Bachelor of Arts in Social Sciences, or Bachelor of Science according to the endorsement granted in the student’s major teaching field.

The secondary teaching major in physical science will receive a Bachelor of Science degree.

For further information on teaching certification, refer to the Department of Teaching and Learning.
population genetic models of genetic variation, and
evolution of plant reproduction. Also under study are:
 genetic engineering of anaerobic microflora,
yeast post-transcriptional gene regulation, membrane
transport and signal transduction in plant and yeast
systems, and genetics of pollen development.

One well established area at Washington State
University is genetic engineering of eukaryotes.
Several faculty are working together on the basic
biology of gene transfer with the intention of im-
proving domesticated plants and animals.

The interdisciplinary role of genetics and cell
biology is emphasized, thus permitting students to
study with scientists who represent a wide range of
research interests in plant, animal, and microbial
 genetics. Many of the faculty research interests
have a major cellular orientation, and extensive
training in cell biology as well as more strictly ge-
netic areas is available within the department.

The Department of Genetics and Cell Biology,
being an interdepartmental organization, enjoys the
availability of many and highly diverse facilities for
research. Faculty laboratories are well equipped with
modern equipment, especially in the recombinant
DNA area, molecular genetics, and cell biology.

Biochemistry, cytology, mathematics, statistics,
physiology, and computer-based analysis proce-
dures are the principal avenues through which
knowledge of genetics and cell biology is acquired.
These subjects are necessary supplemental areas
of study for students in the department.

Students who receive Master’s and PhD degrees
obtain positions in basic and applied genetics at
universities, federal departments and laboratories,
private industry, including biotechnology and
plant and animal breeding, and in some cases in
specialized medical research.

Students who receive a Bachelor of Science in
Genetics and Cell Biology will be prepared to under-
take graduate study leading to the Master’s and PhD
degrees in a variety of areas in agriculture and basic
science. They also will be prepared to work as high-
technician levels in the biotechnology industry or in
university and government laboratories.

Degree Program Requirements

The following is a list of the departmental require-
ments for the undergraduate degree in genetics and
cell biology. Total of 120 credits required for
graduation: Core, 63-72; Option, 15-18. Other:
General Education; Electives, 13-24.

APPLIED GENETICS AND CELL BIOLOGY
DEGREE PROGRAM (123 HOURS) ✔FYDA

College of Agriculture and Home Economics with a
focus on either plant or animal biotechnology.

Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Bio S 103 [B] (GER)</td>
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</tr>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 107</td>
<td>3</td>
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<table>
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<th>Second Semester</th>
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<td>Ag Ec 201 [S] (GER)</td>
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<tr>
<td>Bio S 104 [B] (GER)</td>
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<td>Chem 106 [P] (GER)</td>
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Sophomore Year

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<tr>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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<td>GenCB 450</td>
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<td>Phys 102 [P] (GER)</td>
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<td>Electives</td>
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<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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</tr>
<tr>
<td>Degree Program Course¹</td>
<td>3 or 4</td>
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<tr>
<td>GenCB 498 [M]</td>
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<td>Tier III Capstone (GER)</td>
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</tr>
<tr>
<td>Electives</td>
<td>10</td>
</tr>
</tbody>
</table>

¹ For Animal Biotechnology, take A S 330; for Plant Biotechnology, take Bot 320.
² For Animal Biotechnology, take one from: A S 313 or 314; one from: A S 440 or Zool 353; and one from: V An 308 or Zool 324. For Plant Biotechnology, take one from: CropS 411 or Hort 416; and two from: CropS 445, GenCB 325, Hort 251, Pl P 429.
³ For Animal Biotechnology, take A S 448; for Plant Biotechnology, take Bot 410.

Molecular Genetics and Cell Biotechnology Degree Program (123 HOURS) ✔FYDA

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Bio S 103 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Bio S 104 [B] (GER)</td>
<td>4</td>
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</table>

Senior Year

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<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Degree Program Courses²</td>
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<td>Electives</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Degree Program Courses¹</td>
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<td>Tier III Capstone (GER)</td>
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</tr>
<tr>
<td>Electives</td>
<td>10</td>
</tr>
</tbody>
</table>

¹ For Animal Biotechnology, take A S 330; for Plant Biotechnology, take Bot 320.
² For Animal Biotechnology, take one from: A S 313 or 314; one from: A S 440 or Zool 353; and one from: V An 308 or Zool 324. For Plant Biotechnology, take one from: CropS 411 or Hort 416; and two from: CropS 445, GenCB 325, Hort 251, Pl P 429.
³ For Animal Biotechnology, take A S 448; for Plant Biotechnology, take Bot 410.

Minor in Molecular Biology

Students who complete the following courses may receive a Molecular Biology minor: BC/BP 364, GenCB 301, 310, Micro 301; BC/BP 366, GenCB 402, or Micro 464; BC/BP 463, GenCB 502, or Micro 462.

150
512 Molecular Population Genetics and Evolution 2 Prereq GenCB 511. Evolutionary change of molecular sequences; genetic distance and phylogeny; genomic evolution.
513 Quantitative Genetics 2 Prereq GenCB 511; Stat 512. Fundamentals of quantitative genetics; estimation of variance components; evolutionary quantitative genetics.
516 Fish Genetics 2 Prereq GenCB 301. Chromosomal, biochemical, quantitative, and ecological aspects of fish genetics with emphasis on applications to aquaculture and fish management. Cooperative course taught by WSU, open to UI students (FISH 519).
520 Conservation Genetics 2 Prereq GenCB 301. Genetic studies and approaches relevant to efforts to conserve threatened and endangered populations of organisms.
534 Fungal Genetics 4 (3-3) Same as PI 534.
535 Molecular Genetics of Plant and Pathogen Interactions 2 Same as PI 535.
536 Plant Genetic Engineering Laboratory 2 (0-6) Same as CropS 536.
550 Cell Biology 3 Prereq BC/BP 364; GenCB 301. Cell structure and movement, organelle structure and genome, and cell signal processing. Cooperative course taught by WSU, open to UI students (Genet/PIsc 550).
556 Cell Biotechnology V 1-3 Prereq BC/BP 364; GenCB 450. Contemporary cell biotechnology: techniques including: cell culture, immunology (including preparation and use of monoclonal antibodies), nucleic acid hybridization (including in situ).
560 Molecular Genetics 3 Prereq BC/BP 563; GenCB 301, 502, or Micro 301. Biochemical description of genetic processes in microorganisms.
565 Molecular Biology I 3 Same as BC/BP 565.
566 Molecular Biology II 3 Prereq BC/BP 565; GenCB 301. Gene regulation in prokaryotes and eukaryotes; chromatin structure; DNA repair; RNA processing.
569 Research Proposal 1 May be repeated for credit; cumulative maximum 2 hours. Written and oral presentation of a research paper.
570 Plant Molecular Genetics 3 Prereq GenCB 502. Plant molecular genetics with emphasis on systems specific to plants and plant genetic engineering. Cooperative course taught by WSU, open to UI students (Genet 570/PIsc 571).
572 Fundamentals of Oncology 3 Same as PT 572.
573 Cellular and Molecular Aspects of Development 3 Same as Zool 573.
576 Molecular Biology Techniques 1 1 (0-3) Same as BC/BP 576.
577 Molecular Biology Techniques II 1 1 (0-3) Same as BC/BP 577.
581 Advanced Topics in Genetics V 1-2 May be repeated for credit. Prereq GenCB 502 or 511. Recent research in selected areas of genetics.
588 Perspectives in Biotechnology 3 Graduate-level counterpart of GenCB 488; additional requirements. Credit not granted for both GenCB 488 and 588.
592 Advanced Topics in Cell Biology V 1-3 May be repeated for credit; cumulative maximum 7 hours. Current research in cell structure and function. Cooperative course taught by WSU, open to UI students (Genet/PIsc 592).
598 Seminar 2 May be repeated for credit. Prereq GenCB 301. Reviews of recent and classical research in genetics and cell biology.
600 Special Projects or Independent Study Variable credit. S, F grading.
700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.
702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.
800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Geology


Geology is the study of the Earth, its composition, structure, origin and evolution. Virtually every aspect of modern life is in some way dependent on the science of geology. For example it is the geologist’s job to discover new reserves of energy and raw materials, evaluate groundwater quality and quantity for drinking water supply, assess geologic hazards in land-use planning and unravel the mechanisms of continental drift and biological evolution.

Both general and advanced training is offered in most specializations in geology. The lower-division courses are designed to provide a strong foundation for those who major in geology as well as a stimulating introduction to earth science for the non-major. The 300-400-level courses provide training for professional geological work as well as preparation for postgraduate study.

The department has modern teaching facilities and special equipment, including an electron microscope, radiocarbon dating laboratory, X-ray diffraction and fluorescence instrumentation, induc- tively coupled plasma mass spectrometer, isotope extraction lines and isotopic mass spectrometer, gas chromatographs and carbon analyzer, drilling rig, groundwater field demonstration site, transmitted and reflected light microscopes, for graduate study and research. There are active research programs in igneous petrology, geochemistry and mineralogy, structural geology and tectonics, economic geology, groundwater and contaminant hydrology, sedimentology and stratigraphy and paleontology.

The department offers courses of study leading to the degrees of Bachelor of Science in Geology, Master of Science in Geology, and Doctor of Philosophy (Geology).

Degree Program Requirements

Candidates for a B.S. degree in geology follow the curriculum outlined below. A minimum of 120 semester hours of credit is required for graduation, including a minimum of 40 semester hours of credit in 300-400-level course work with a 2.0 minimum g.p.a. overall and in the major.
**GEOLOGY DEGREE PROGRAM (135 HOURS)**

**Freshman Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Geol 101 [P] or 102 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Math 107, if necessary</td>
<td>4</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Geol 206</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)²</td>
<td>4</td>
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**Sophomore Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Semester</td>
<td></td>
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<tr>
<td>Cpt S 150 or Math 172</td>
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</tr>
<tr>
<td>Geol 210 [P] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Geol 350 [M]</td>
<td>4</td>
</tr>
<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Geol 260</td>
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<tr>
<td>Geol 310</td>
<td>3</td>
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<tr>
<td>Phys 102 [P] or 202 [P] (GER)</td>
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**Junior Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Semester</td>
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</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Geol 315</td>
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</tr>
<tr>
<td>Geol 320</td>
<td>3</td>
</tr>
<tr>
<td>Geol 355</td>
<td>2</td>
</tr>
<tr>
<td>Geol 356</td>
<td>2</td>
</tr>
<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<tr>
<td>Second Semester</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Geol 340 [M]</td>
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<tr>
<td>Geol 362</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Year 3, Summer Session: Geol 308 [M]</td>
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**Senior Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
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</tr>
<tr>
<td>Geology Electives¹ or Electives²</td>
<td>6</td>
</tr>
<tr>
<td>Three From: Geol 403, 405, 421, 470, 475, 480³</td>
<td>9-11</td>
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<tr>
<td>Second Semester</td>
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<td>Geology Electives or Electives²</td>
<td>10</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

¹ Suggested Electives include: Geol 201, 221, 491, 498, 499: graduate-level geology courses (senior year).
² B or better required; if less than a B, Engl 402 is required.
³ C or better required.
⁴ Students going on to graduate school should take as many of these courses as possible. Check time schedule to confirm semester offerings.

**Preparation for Graduate Study**

As preparation for work toward an advanced degree in geology, a student should have completed, or plan to take without graduate credit, the following or their equivalents: Geol 102, 210, 340, 350, 308, 310, 320, 355, 356, 362; one year of general physics; one year of general inorganic chemistry; mathematics through one semester of calculus.

**Description of Courses**

**Geology**

**Geol**

101 [P] *Introduction to Geology* 4 (3-3) Introductory physical geology for non-science majors; emphasis on western U.S. Credit not granted for more than one of Geol 101, 102, 180.

102 [P] *Physical Geology* 4 (3-3) For science majors and honors students. Modern concepts of earth science; mineral rock, resource, and map study. Field trip required. Credit not granted for more than one of Geol 101, 102, 180.

150 [Q] *Conflict and Debate in Geological Sciences* 4 (3-3) Examples in geology of how science is done, it advances, and what constitutes scientific work.

180 [P] *Honors Geology* 4 (3-3) Prerequisite honors student or by interview. Introduction to physical geology with emphasis on original research and scientific writing. Credit not granted for more than one of Geol 101, 102, 180.

201 *Geology of the National Parks* 2 Prerequisite Geol 101 or 102. Significant geologic features, processes, and geologic history of the national parks. Field trip optional.

206 *Field Petrology* 3 (2-3) Prerequisite Geol 101 or 102. Hand sample analysis, petrogenesis and field relationships of rocks. Field trips required.

210 [P] *Evolution and Earth* 3 (2-3) Prerequisite Geol 101 or 102; Rec Bio S 102. History and development of the Earth's physical features and its inhabitants. Field trip required.

221 *Field Trip* 1 (0-3) May be repeated for credit. Prerequisite Geol 210. One-week field trip to study geology of a selected area of the western United States. S, F grading.

260 *Quantitative Concepts in Geology* 2 (1-3) Prerequisite Chem 105; Geol 350 or c//; Math 108 or c//; Phys 101 or 201. Basic mathematical tools and physical principles for geologic problem solving.

300 *Vertebrate Paleontology and Evolution* 3 Prerequisite Geol 210. Vertebrate evolution with focus on dinosaurs including origins, physiology, behavior, and relationships.

308 [M] *Geology Field Camp* 6 (0-18) Prerequisite junior standing; Geol 340, 350. Detailed geologic mapping of an area; practice in methods of geologic field work. Cooperative course taught jointly by WSU and UI (Geol 301).

310 *Invertebrate Paleontology* 3 (2-3) Prerequisite Geol 210. Morphology, classification, evolution, and paleoecology of fossil invertebrate organisms.

315 *Water and Earth* 3 (2-3) Prerequisite Chem 106 and Geol 101; or 260; Math 140, 171, or c//; Phys 102 or 202. Global hydrologic cycle, including rivers and weathering, groundwater, rainwater and the atmosphere, oceans, human impacts. Field research required.

320 *Sedimentary Petrology and Sedimentation* 3 (2-3) Prerequisite Geol 210, 355. Sedimentary rock composition and origins applying fundamental principles of sedimentology. Field trip required.

322 *Geology of the Pacific Northwest* 3 Prerequisite Geol 101 or 102. Overview of the geology in the Pacific Northwest, United States. Credit not granted for both Geol 322 and 323.

323 [P] *Geology of the Pacific Northwest* 4 (3-3) Prerequisite Geol 101 or 102. Physical geology of the Pacific Northwest focusing on geological processes important to its evolution. Field trips required. Credit not granted for both Geol 322 and 323.

340 [240] [M] *Geologic Structures* 4 (3-3) Prerequisite Geol 206, 210; Math 108. Basic understanding and techniques of working in deformed rocks in mountain belts. Field trip required.

350 [250] [M] *Mineralogy and Crystallography* 4 (2-6) Prerequisite Chem 101 or 105; Geol 101 or 102. Composition, physical properties, structure, crystallography, identification, and origin of minerals. Field trip required.

355 *Optical Mineralogy* 2 (1-3) Prerequisite Geol 350; Phys 102 or 202; c// in Geol 356. Elements of optical crystallography and optical identification of minerals.

356 *Igneous Petrology* 2 (1-3) Prerequisite c// in Geol 355. Mineralogy and petrology of igneous rocks, using the polarizing microscope. Field trip required.

362 *Metamorphic Petrology* 2 (1-3) Prerequisite Geol 356. Mineralogy and petrology of metamorphic rocks using the polarizing microscope. Field trip required.

403 *Environmental Geology* 3 Prerequisite Geol 101 or 102. Geological hazards and geologic problems associated with human activities. Optional field trip.

405 *Geophysics* 4 (3-3) Prerequisite Geol 340. Theory and application of geophysical methods for hydrology, environmental, engineering, exploration, and structural geology; review of techniques. Credit not granted for both Geol 405 and 505. Cooperative course taught by WSU, open to UI students (GeolE 524).

421 [M] *Principles of Stratigraphy* 3 (2-3) Prerequisite Geol 210, 340. Correlation and dating of sedimentary strata; tectonics and sedimentary basins; regional patterns of sedimentation.

426 *Engineering Geology and Geotechnics* 3 Same as Ge 426. Credit not granted for both Geol 426 and 526. Cooperative course taught jointly by WSU and UI (GeolE 435).
428 Geostatistics 3 Same as Stat 428. Cooperative course taught by UI (Geol/E/Stat 428), open to WSU students.
451 Pedology 3 (2-3) Same as SoilS 451.
475 Groundwater 3 (2-3) Prereq C E 317; or Geol 315; or all of the following four courses: Chem 106; Geol 101; Math 140 or 172; and Phys 101 or 202. Introduction to groundwater occurrence, movement, quality, and resource management, emphasizing physical and biogeochemical principles.
480 Introductory Geochemistry 3 Prereq Chem 106, Geol 350. The chemistry of Earth materials and processes. Cooperative course taught by WSU, open to UI students (Geol 583).
491 Remote Sensing and Geologic Applications 3 (2-3) Prereq Geol 340; Phys 102 or 202. Remote sensing techniques and their utilization in geologic studies, air photos, radar, IR, and Landsat imagery used. Field trip required. Credit not granted for both Geol 491 and 591.
498 Undergraduate Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Prereq major in Geol or related field. Research papers presented by students, faculty, and visiting scientists on geological research. S, F grading.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
505 Geophysics 4 (3-3) Graduate-level counterpart of Geol 405; additional requirements. Credit not granted for both Geol 405 and 505. Cooperative course taught by WSU, open to UI students (GeolE 524).
508 Advanced Field Methods 3 (0-9) May be repeated for credit. Individual instruction in advanced methods of field geology.
511 Advanced Topics in Paleontology 3 Prereq Geol 310, 320. Advanced problems and new techniques in paleontology from current literature. Cooperative course taught by WSU, open to UI students (Geol 511).
515 Paleoecology 3 Ecological dynamics as applied to the paleontological record; preservation constraints; animal-sediment interactions; organisms’ role in the relative time scale. Field trip required. Cooperative course taught by UI (Geol 515), open to WSU students.
520 Advanced Topics in Sedimentary Rocks 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq Geol 320. Modern aspects of sedimentary rocks. Cooperative course taught by WSU, open to UI students (Geol 520).
521 Clastic Depositional Systems 3 (2-3) Prereq Geol 320. Clastic sedimentary environments; architectural elements and facies analysis. Cooperative course taught by WSU, open to UI students (Geol 528).
523 Advanced Topics in Stratigraphy 3 May be repeated for credit. Prereq Geol 421. Cooperative course taught by WSU, open to UI students (Geol 523).
525 Carbonate Depositional Systems 3 (2-3) Prereq Geol 320. Modern carbonate environments and processes; ancient carbonate rock sequences; carbonate platform-to-basin transition; diagenesis of carbonate rocks. Field trip required. Cooperative course taught by WSU, open to UI students (Geol 525B).
526 Engineering Geology and Geotechnics 3 Graduate-level counterpart of Geol 426; additional requirements. Credit not granted for both Geol 426 and 526.
528 Petrology of Carbonate Rocks 3 (2-3) Prereq Geol 320. Origin, classification distribution, depositional environments, and diagenesis of modern and ancient carbonates; emphasis on petrographic analysis. Field trip required. Cooperative course taught by UI (Geol 526), open to WSU students.
529 Geologic Development of North America 3 Prereq Geol 310, 421. Tectonic, magnetic, and sedimentary sequence studies of North American continent through time; concepts of metal and petroleum enrichment related to time and geological processes. Field trip required. Cooperative course taught by UI (Geol 532), open to UI students (Geol 529).
530 Advanced Mineralogy 3 Prereq Chem 340. Nature and origin of the Earth’s major tectonic features. Cooperative course taught by WSU, open to UI students (Geol 548).
541 Structural Analysis 3 (2-3) Prereq Geol 340. Structural analysis of complexly deformed rocks in orogenic belts. Field trip required. Cooperative course taught by WSU, open to UI students (Geol 541).
550 Advanced Mineralogy 3 Prereq Chem 106, Geol 355. Elements of crystal chemistry and crystal physics. Cooperative course taught by WSU, open to UI students (Geol 550).
551 Ore Microscopy and Fluid Inclusion Analysis 3 (0-9) Prereq Geol 355, 470. Ore and alteration mineralogy of major ore deposits; mineral identification, textural interpretation, sample preparation, photomicrography, fluid inclusion analysis. Field trip required. Cooperative course taught by WSU, open to UI students (Geol 551).
552 X-ray Analysis in Geology 3 (2-3) Generation and use of X-rays for geological research; electron microprobe/SEM, X-ray fluorescence and X-ray powder diffraction. Cooperative course taught by WSU, open to UI students (Geol 552).
554 Physical Petrology 3 Prereq Geol 356. The applications of continuum mechanics and fluid dynamics to the generation, rise, storage, and eruption of magmas. Cooperative course taught by UI (Geol 554), open to WSU students.
560 Advanced Igneous Petrology 3 (2-3) Origin, evolution, and tectonic significance of igneous rocks. Cooperative course taught by WSU, open to UI students (Geol 560).
561 Advanced Mineral Deposits 3 Modern concepts of the origin and geochemistry of metallic mineral deposits. Field trip required. Cooperative course taught by UI (Geol 577), open to WSU students.
563 Igneous Petrogenesis 3 (2-3) Prereq Geol 356. Chemical and petrologic techniques used to interpret the origin and evolution of igneous rocks. Cooperative course taught by WSU, open to UI students (Geol 563).
567 Volcanology 3 (2-3) Prereq Geol 356. Eruption mechanisms, volcanic processes and landforms, and volcanic deposits. Field trips required. Cooperative course taught by UI (Geol 567), open to WSU students.
569 Field Methods in Hydrogeology 2 (1-3) Prereq Geol 475; Geol 577 or 579. Theory and practice of acquisition of hydrogeologic data, emphasizing design and execution of field experiments.
570 Advanced Topics in Hydrogeology V 1-4 May be repeated for credit; cumulative maximum 9 hours. Prereq Geol 475. Topics may include organic/inorganic contaminant fate, recharge, carbon cycling, isotope applications.
571 Geochemistry of Hydrothermal Ore Deposits 3 (2-3) Prereq Geol 470. Ore formation in hydrothermal environments; sulfide mineral stability, water/rock interactions, and stable isotope relationships to altered rocks. Field trip required. Cooperative course taught by WSU, open to UI students (Geol 571).
573 Advanced Topics in Economic Geology 2 May be repeated for credit. Prereq Geol 470. Ore-forming process or deposit type combining literature synthesis, theoretical evaluation and field trip inspection. Cooperative course taught by WSU, open to UI students (Geol 573).
574 Advanced Remote Sensing 3 (1-4) Same as SoilS 574.
575 Seminar in Remote Sensing 1 Same as SoilS 575.
577 Advanced Groundwater Hydraulics 3 Same as C E 577.
579 Groundwater Geochemistry V 2-4 May be repeated for credit; cumulative maximum 4 hours. Prereq Chem 331, Geol 475. Organic and inorganic aqueous geochemistry; controls on groundwater contaminant fate. Cooperative course taught by WSU, open to UI students (Hydro 566).
581 Geochemical Phase Diagrams 3 Principles and application of geochemical phase diagrams. Cooperative course taught by WSU, open to UI students (Geol 581).
582 Introduction to Geochemical Thermodynamics 3 Prereq graduate standing. Principles and applications of geochemical thermodynamics to mineralogy, petrology, and natural water systems.
584 Principles of Isotope Geochemistry 3 Principles and applications of isotope geochemistry in the geological sciences.
588 Isotope Geochemistry 4 Prereq Geol 480. Geologically useful radioactive isotopes; geochronology and isotopes as tracers. Cooperative course taught by UI (Geol 588), open to WSU students.
591 Remote Sensing and Geologic Applications 3 (2-3) Graduate-level counterpart of Geol 491; additional requirements. Credit not granted for both Geol 491 and 591.
592 Advanced Topics in Structural Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Advanced topics across normal subject boundaries. Cooperative course taught by WSU, open to UI students (Geol 592).
595 Graduate Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate student in Geol or related field. Papers presented by students, faculty, and visiting scientists on geological research. S, F grading.
Department of History


Offerings in the field of history may be classified as American, Asian, European, and Latin American.

A major in history can be used in government service, the new specialty of public history, several areas of business and industry, and many other fields. It can also be used in preparation for study of the law, the ministry, archival work, and librarianship. Double majors or complementary minors combining history with other fields are easily arranged.

The department offers courses of study leading to the degrees of Bachelor of Arts in History, Bachelor of Arts in Social Studies, Master of Arts in History, and Doctor of Philosophy. In cooperation with the Departments of English and Speech and Hearing Sciences, the department participates in the interdisciplinary Program in American Studies leading to the degree of Doctor of Philosophy.

Degree Program Requirements

HISTORY DEGREE PROGRAM (123 HOURS)

At least 40 of the total hours required for the bachelor's degree in this program must be in 300-400-level courses. A grade of C or better is required in all History courses used to fulfill the requirements for this major.

It is assumed that prior to the junior year the student will have completed courses meeting General Education and College of Liberal Arts requirements for graduation.

Freshman Year

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<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Tier I Science [Q] (GER)</td>
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<th>Second Semester</th>
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<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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Sophomore Year

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Junior Year

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<td>Complete Writing Portfolio</td>
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Senior Year

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1 Students may also fulfill the 3-credit Tier I Science and the 1-credit Science Elective by taking a 4-credit Tier I Science course.

2 Courses in the same or in related disciplines with the advisor’s approval; students are encouraged to explore, in consultation with their advisor, a double-major or strong minor in a complementary subject field.

3 History Electives must include 6 hours US history, European history, and 6 hours history from other areas.

SOCIAL STUDIES DEGREE PROGRAM (120 HOURS)

Social Studies is traditionally a major for students who plan to earn both a BA and a primary teaching endorsement and is also an interdisciplinary Liberal Arts major. Students pursuing a teaching certificate must apply for admission to the 12 Initial Certificate Program and complete an additional approximately 35 hours of credits (which include 16 hrs. of student teaching).

Freshman Year

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<tr>
<th>First Semester</th>
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<td>Tier I Science [Q] (GER)</td>
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<td>SpCom 102 [C] (GER)</td>
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Sophomore Year

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<td>Pol S 101 [S] or Psych 105 [S] (GER)</td>
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Junior Year

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<td>Complete Writing Portfolio</td>
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<td>Hist 422</td>
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Senior Year

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<td>Elective</td>
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</table>

1 Students may also fulfill the 3-credit Tier I Science and the 1-credit Science Elective by taking a 4-credit Tier I Science course.

2 Approved seminar may double for credits of either History or Social Studies electives.

HISTORY EDUCATION DEGREE PROGRAM (123 HOURS)

Students who wish to earn a teaching credential must apply to the teacher certification program in the College of Education. They should consult with an advisor in History.

36 hours of Hist, including 6 hours of U.S., 6 hours of European, 6 hours of other areas, of which 21 hours must be 300-400-level. Hist 480 is not counted as part of the 36 hours.

A supporting endorsement (18-21 hours) is required. It should be selected in consultation with
Minor in History

A minor in history requires 16 hours, 8 of which must be in 300-400-level courses. A grade of C or better is required in all course work for the minor.

Preparation for Graduate Study

Students who have had basic undergraduate training in European and American history (approximately 12 hours) and who have had undergraduate majors in such subjects as American literature, economics, anthropology, and political science may be well prepared for graduate study in several fields of specialization in history. Adequate opportunities are provided for removing deficiencies by taking appropriate courses or special examinations.

Undergraduates who are pursuing their studies at other institutions or through other curricula at this institution and who contemplate graduate work in this department should select courses similar to those required in the above schedule of studies.

Description of Courses

History

Hist

101 [H] Classical and Christian Europe 3 Greece and Rome, birth of Christianity and Islam, Middle Ages, Renaissance, Reformation, religious wars, Louis XIV.

102 [H] Modern Europe 3 War, revolution, industrialization, culture 18th to 20th centuries; imperialism, democracy, and totalitarianism; Europe’s leaders Napoleon to Hitler; Post-WW II developments.

110 [S] American History to 1877 3 Economic, cultural history of British mainland colonies/United States to 1877.

111 [S] American History Since 1877 3 Economic, cultural, historical study of United States, 1877 to present.

198 [S] History Honors 3†

201 [K] Introduction to Asian/Pacific American History 3 Same as CAC 211.

205 [I] African American History 3 Same as CAC 235.

216 [H] Main Currents in American Culture 3 Same as Engl 216.

230 [K] Latin America, The Colonial Period 3 Overview of the most significant events, social and ethnic groups, practices, and institutions of colonial Latin America.

231 [K] Latin America, The National Period 3 Investigation of broad themes, individual national histories, and United States policy in Latin America over the past two centuries.

270 [K] Introduction to South Asian Culture 3 Development of civilization; and contemporary situations of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, and the Maldives.

272 [I] Introduction to Middle Eastern History 3 History of the Middle East from Muhammad to the present; political and religious development and the impact of empires.

273 [G] Foundations of Islamic Civilization 3 Main ideas and institutions that have characterized Islamic civilization since its founding, presented thematically.

275 [K] Introduction to East Asian Culture 3 Civilizations of China and Japan.

284 [S] History of Women in American Society 3 The role of women—social, economic, political—in American history from colonial times to the present.


307 [K] North American Indian History, Precontact to Present 3 History of North American Indian peoples from circa 1350 to present.

312 [M] History of Canada 3 From European discovery through French settlement and English conquest to the persistent regional and ethnic diversity of the present.

313 [S] Civil Rights Movement in America 3 Same as CAC 335.

315 Topics in Canadian Studies 1 May be repeated for credit; cumulative maximum 5 hours. An interdisciplinary explanation through roundtable discussions, lectures, films, and readings of an important Canadian issue or region.

335 Women in Latin American History 3 Survey of women’s changing roles throughout Latin America from precolonial to present.

340 [H] Ancient Greece 3 History and culture of the preChristian Greek civilization.

341 [H] Rome: Republic and Empire 3 History and culture of the Roman world from the independence of the city to the onset of the medieval order.

342 [H] History of England to 1485 3 English history; intellectual and cultural development.

343 [H] History of England Since 1485 3 Continuing history of England from the reign of the first Tudor monarch, Henry VII, to the present welfare-state era.

345 Topics in History Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.

348 History of Scandinavia 3 A history of Scandinavia from earliest historical times to the present.

350 [S] European Women’s History, 1400-1800 3 Women’s experiences in Europe from the Renaissance to the Enlightenment and the ideas and roles that shaped their opportunities.

360 Foundations of Western Civilization 3 Major ideas and institutions from antiquity to the present which form the basis of Western civilization, presented thematically.

370 [G] Civilization of Classical India 3 Aspects of arts, literature, music, mythology, philosophy, and religion of India to A.D. 1000, treated in historical and cultural context.

373 [G] Chinese Civilization 3 Growth of Chinese civilization from the dawn of history to the present.

†Open only to students in the Honors Program.
374 [I] Japanese Civilization 3 Overview of the evolution of Japanese culture and society from ancient times to the present.

380 [S] History of Medicine 3 Medicine in English-speaking societies, Middle Ages to present; development of medical care as a social institution.

381 [S] Science in Western Civilization Through Newton 3 Development of Western science and its influence on European culture and society.

382 [S] Science in Western Civilization from Newton to Einstein 3 Development of modern science and its influence on Western culture and society.

386 World War II in Europe 3 Causes for war; military operations; economic mobilization; social and cultural change; occupation and resistance; the Holocaust; the legacy of war.

387 World War II in Asia and the Pacific 3 Imperial rivalries in Asia; Japanese militarism; military, ideological and social aspects of the war; the atomic bomb; memory of the war.

398 [M] History of Women in the American West 3 The history of women in the American Northwest through women's literature, archives, and oral history.

408 Indians of the Northwest 3 Same as CAC 475.

409 [S] American Environmental History 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. A history of environmental change, ideas of nature, natural resource development, conservation politics, science and environmental policy.

411 American Diplomatic History, 1776-1914 3 Policies and principles characteristic of American diplomacy from 1776 to 1914. Credit not granted for both Hist 411 and 511.

412 American Diplomatic History in the 20th Century 3 Credit not granted for both Hist 412 and 512.

413 [M] Early American History to 1750 3 The cultures and interactions of Native Americans, Europeans, and Africans; development of colonial American societies and institutions.

414 The Era of the American Revolution 3 The origins of the American Revolution, the War of Independence, and the emergence of republican government and society.

415 Jeffersonian-Jacksonian America 3 Social and political history of the United States from 1789 to 1845; Jeffersonian and Jacksonian eras. Credit not granted for both Hist 415 and 515.

416 Civil War and Reconstruction 3 The Civil War as a problem in historical causation and social, political, and economic impact of the war. Credit not granted for both Hist 416 and 516.

417 Rise of Modern America 3 Response to industrialism in the Gilded Age and the reform movements of Populism and Progressivism. Credit not granted for both Hist 417 and 517.

418 United States, 1914-1941 3 America through World War I, cultural tensions of the Twenties, and the crises of Depression and impending war. Credit not granted for both Hist 418 and 518.

419 United States, 1941-Present 3 International and domestic impact of World War II, era of McCarthyism, American aspirations, tensions and conflicts in the post-industrial era. Credit not granted for both Hist 419 and 519.

420 American Constitutional History 3 Prereq Hist 110 or S 110. Credit not granted for both Hist 420 and 520.

421 The American West 3 Multicultural exploration of the frontier experience and western America; environment, economic development, gender, class and race emphasized. Credit not granted for both Hist 421 and 521.

422 History of the Pacific Northwest 3 Fulfills the teaching certification requirement in state history and government in Washington and other Pacific Northwest states. Credit not granted for both Hist 422 and 522.

423 American Social and Intellectual History 3 Social and intellectual developments in the United States from colonial times to the present. Credit not granted for both Hist 423 and 523.

425 (225) [I] The City in History 3 Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence. Description and comparison of the history through history in European and one or more non-Western cultures.

427 [M] Public History: Theory and Methodology 3 An introduction to the broad range of non-traditional careers in history. Credit not granted for both Hist 427 and 527.

430 [M] History of Mexico 3 War of independence, Mexico and the liberal-conservative struggle; modern Mexico since the Revolution of 1910.

432 20th Century Latin America 3 Contemporaneous developments, policies and trends in the Latin American states.

433 History of Cuba and the Caribbean 3 Historical development of the Caribbean, with emphasis on Cuba, from the Spanish arrival to Castro's revolution. Credit not granted for both Hist 433 and 533.

434 History of Central America 3 Social and political development in Central America; reasons for dictatorships and radical social changes.

435 [T] European Expansion Overseas, 1400-1800 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. The factors underlying European overseas expansion before 1800 and its impact on indigenous societies and world trading patterns.

436 [S] Imperialism in the Modern World 3 Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence. History of imperialism (colonial, economic, territorial, cultural) since 1800 as a global phenomenon.

437 Topics in History—Study Abroad 3

438 Topics in History—Study Abroad 3

440 The Early Middle Ages, 330-1050 3 Western Europe, the Byzantine Empire, and Islam from the dissolution of classical Roman civilization to the 11th century revival.

441 The Later Middle Ages, 1050-1500 3 Western European and Byzantine civilizations from the 11th century revival to the advent of the Renaissance in the West.

442 Topics in History Study Abroad 3

443 Topics in History Study Abroad 3

444 [H] The Renaissance 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. Political, cultural, and religious history of Europe, 1300-1500.

445 [M] The Reformation 3 Political, cultural, and religious history of Europe, 1500-1600.

446 Age of Louis XIV: Europe 1600-1789 3 Early modern Europe emphasizing artistic, intellectual, and political trends.

447 Europe in the French Revolutionary and Napoleonic Era, 1789 to 1815 3 Credit not granted for both Hist 447 and 547.

449 Europe and Two World Wars, 1914-1945 3 Political, intellectual, economic, and international aspects of European life during and between two world wars. Credit not granted for both Hist 449 and 549.

450 [M] Europe Since 1945 3 Europe from the end of World War II to the present; the Cold War, European integration, social and intellectual life. Credit not granted for both Hist 450 and 550.

451 Topics in History—Study Abroad 3

452 Topics in History—Study Abroad 3

453 Age of Revolution: Europe, 1815-1870 3 The consolidation of industrial society and the nation-state in nineteenth-century Europe. Credit not granted for both Hist 453 and 553.

454 Age of Imperialism: Europe, 1870-1914 3 The rise of Europe to world predominance and the crisis of the European order. Credit not granted for both Hist 454 and 554.

455 From the Tudor Revolution to the Glorious Revolution 3 England in the age of the Protestant Reformation. Credit not granted for both Hist 455 and 555.

459 Modern Britain 3 Britain and the Empire from the Napoleonic wars to the present. Credit not granted for both Hist 459 and 559.

462 History of Imperial Russia 3 History and culture of Imperial Russia from Peter the Great to the 1905 revolution. Credit not granted for both Hist 462 and 562.


465 East-Central Europe 3 History, government, and culture of the countries between Germany and the Soviet Union; emphasis on the 20th century. Credit not granted for both Hist 465 and 565.

468 Hitler and Nazi Germany 3 Origins and rise of Nazism; state, society and culture in the Third Reich; Nazi racial ideology; world war; the Holocaust. Credit not granted for both Hist 468 and 568.

469 [M] Seminar in History 3 May be repeated for credit.

470 [I] [M] Gandhi: India and the United States 3 Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence. British India, Gandhi and development of satyagraha in the Indian independence movement and its use in the US civil rights struggle.

472 [M] 20th Century Middle East 3 Developments in the Middle East since World War I including nationalism, fundamentalism, and revolution. Credit not granted for both Hist 472 and 572.

476 Revolutionary China, 1800 to Present 3 Nature and effects of revolution on China from 1800 to present. Credit not granted for both Hist 476 and 576.

477 Modern Japanese History 3 The development of state and society in Japan from 1800 to present. Credit not granted for both Hist 477 and 577.

480 Methods of Teaching Social Studies 3 Prereq certification; by interview only. Methods, resources, selection of content, past and present issues in social studies education.
and cultural world and is designed to supplement the more specialized training in the major field. It also provides the opportunity and the stimulus for students to develop their creative abilities.

The University Honors Program is comprised of students from all departments and colleges who take honors courses in place of General Education Requirements throughout their undergraduate career. Many departments and colleges offer special honors courses for their students in addition to the university honors courses.

Students who are not admitted to the University Honors Program as incoming first year students may petition to enter the UHP any time after the end of their first semester but no later than the beginning of the junior year. For continued enrollment in the University Honors Program, students must maintain an overall B+ average (3.2). Students in the UHP are not required to complete the General Education Requirements for graduation, except for the foreign language requirement where it applies. Students who satisfactorily complete all UHP requirements, earn a 3.2 grade point average in honors courses, and a cumulative grade point average of 3.2, will receive a University Honors Certificate of Completion provided they have completed a minimum of 14 graded credits of honors courses and seminars.

The mathematics requirement for students in the University Honors Program can be met in a number of ways. Students who, on the basis of the math placement exam, test into Math 172, are exempt from this requirement, as are students awarded Math 171 advanced placement credit. Most students fulfill their mathematics requirement by completing the math required by their major department, or, if no math is required by their major, by meeting the math requirements set by the General Education Program. Typical courses include the following: Math 140, 171, 202, 205, 206, 210, 222, or 251 and 252. For the University Honors prevetinary students, Stat 412 may be accepted with special permission of an honors advisor. A student may withdraw from the University Honors Program at any time within existing university rules, and the honors courses taken will be applied toward the General Education Requirements for graduation.

Courses offered through the University Honors Program are open to students enrolled in the program. Other students not enrolled in the UHP may sign up for honors courses on a space-available basis providing they meet eligibility criteria for the UHP.

**Degree Program Requirements**

A bachelor’s degree earned through the University Honors Program requires approximately the same number of total semester hours as required by the General Education curriculum.

The University Honors Program regards fluency in another language as an important skill of an educated individual and encourages all students to undertake the study of a foreign language. The UHP accommodates students who wish to pursue foreign languages through allowing them to slightly alter their program schedule of studies. Those students who complete the equivalent of four semesters of a single foreign language at WSU will complete two social science classes instead of three and will be exempt from completing the independent study requirement. All students other than foreign language majors who pursue study of a foreign language beyond the fourth semester, and all students who study abroad, will be recognized at graduation with a University Honors Program Certificate of Completion with International Emphasis. This option is available under special circumstances to foreign language majors who must petition the program for special consideration.

University Honors Program students are required to complete the courses (or approved substitutes) specified in the following schedule of studies. As stated above, UHP students are strongly urged to gain proficiency in a foreign language and to take advantage of the Study Abroad opportunities offered by Washington State University. Either or both of these options can be successfully integrated into the following schedule of classes in conjunction with the courses required by the student’s major.

Each semester, students enrolled in the Honors Program take one to three honors courses in addition to their major courses. The suggested schedule of studies, distributing the honors courses over four years, is as follows:

**Freshman Year**

| First Semester | Eng 198 or 199 | Math requirement1 or social science 198 |
| Second Semester | Eng 198 or 199 | Math requirement1 or social science 198 |

**Freshman or Sophomore Year**

Choose three:

| Anth 198, Econ 198, Hist 198, Pol S 198, Psych 198, Soc 198 |

**Sophomore Year**

| Bio S 298 (spring only)2 | Ph S 298 (fall only)3 |

**Junior Year**

| U H 330 Development of Western Civilization U H 350 Development of Global Civilization |
| **Junior or Senior Year** | U H 450, 451, 452, 453, 454, 455, or 456 |
| **Senior Year** | U H 440 Domain of the Arts |

**Timing Optional with Student:**

Independent Study4

Choose one:

| Hum 198, Phil 198, U H 260 |
| Optional: U H 430 (Foreign Study Practicum and Report) |

1 Students who qualify for Calculus II (Math 172) on the basis of the math placement test are exempt from this requirement. Other students take the math required by their major. Where no math is required beyond General Education Requirements, University Honors will accept: Math 140, 171, 202, 205, 206, 210, 222, 251 and 252, etc. For any questions concerning the math requirement, check with a University Honors Program advisor.

2 Students taking physical science laboratory courses for their majors may be exempt from this requirement.

3 Students taking physical science laboratory courses for their majors may be exempt from this requirement.

4 A minimum of 3 credits of independent study is required. This requirement may be fulfilled through Special Problems (U H 499), during the summer or academic year. This option involves a nonclassroom academic experience, under the guidance of a professor, designed by the student and the professor. Phil and Hum can be taken from the freshman year on.

**Description of Courses**

- **A S 198 Animal Science Honors 3**
- **Anth 198 [S] Anthropology Honors 3**
- **Bio S 298 [B] Biological Science Honors 4 (3-3)**
- **Chem 115 Chemical Principles Honors I 4 (3-3)**
- **Chem 116 Chemistry Principles Honors II 4 (3-3)**
- **Econ 198 [S] Economics Honors 3**
- **Engl 198 [W] English Composition Honors 3**
- **Engl 199 [H] English Composition and Literature Honors 3**
- **Geol 180 [P] Geology Honors 4 (3-3)**
- **Hist 198 [S] History Honors 3**
- **Hum 198 [H] Humanities Honors 3**
- **Phil 198 [H] Philosophy Honors 3**
- **Ph S 298 Physical Science Honors 4 (3-3)**
- **Phys 205 Physics Honors 5 (3-5)**
- **Pol S 198 [S] Political Science Honors 3**
- **Psych 198[S] Psychology Honors 3**
- **Soc 198 [S] Sociology Honors 3**

**University Honors**

**U H 105 Honors Freshman Seminar 1 Introduction to the academic culture and opportunity to enrich learning in entry-level courses. Credit not granted for more than one of GenEd 104, 105, U H 105.**

**U 150 Introduction to Science and Technology 3 (2-3) Physical/biological science principles, methods and roles of scientists and engineers, historical context, current technological issues, limits of scientific inquiry.**

**200 Sophomore Summer Reading Examination V 1-3 May be used to fulfill the independent study requirement for the Honors Program. Examination to be taken during first six weeks of first semester of sophomore year. Variable credit depending on extent and quality of summer reading. S, F grading.**

**260 (460) Honors Seminar 2 May be repeated for credit. In-depth study of selected topics.**

**300 Junior Summer Reading Examination V 1-3 May be used to fulfill the independent study requirement for the Honors Program. Examination to be taken during the first six weeks of first semester of junior year. Variable credit depending on extent and quality of summer reading. S, F grading.**

**330 Development of Western Civilization 3 Required of all Honors Program students in their junior or senior year. Examination of the literary, cultural, philosophical, and historical traditions within western civilization.**
Development of Global Civilizations 3 Cultural and historical traditions of one or more civilizations; primary focus on Asian, African, Middle Eastern, and South American civilizations. Required of all Honors Program students in their junior or senior year.

Senior Summer Reading Examination V 1-3 May be repeated for credit; cumulative maximum 6 hours. May be used to fulfill the independent study requirement for the Honors Program. S, F grading.

Foreign Study Practicum and Reports V 1-4 By interview only. Special assignments and reports related to foreign study programs. S, F grading.

Domain of the Arts 3 Required of all Honors Program students in their junior or senior year.

Honors Thesis or Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Thesis or project directed by student’s major department. S, F grading. Credit not granted for more than one of UH 450, 451, 452, 453, 454, 455, 456.

Honors Interdisciplinary Thesis/Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. In-depth reading and writing project based upon original research and work; supervised by faculty members from two or more departments. S, F grading. Credit not granted for more than one of UH 450, 451, 452, 453, 454, 455, 456.

Honors Community Service Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Supervised academic experience based on community service or designed to assist in solving particular social problems; formal research paper. S, F grading. Credit not granted for more than one of UH 450, 451, 452, 453, 454, 455, 456.

Honors Internship Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Supervised experiential learning project combining academic training with practical experience within one’s career field or other areas; formal research paper. S, F grading. Credit not granted for more than one of UH 450, 451, 452, 453, 454, 455, 456.

Honors Teaching Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Classroom and teaching experience; results are presented in a formal research paper. S, F grading. Credit not granted for more than one of UH 450, 451, 452, 453, 454, 455, 456.

Honors Education Abroad Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Supervised writing and research carried out while participating in a WSU-sponsored exchange. S, F grading. Credit not granted for more than one of UH 450, 451, 452, 453, 454, 455, 456.

Honors Team Research Projects V 1-3 May be repeated for credit; cumulative maximum 3 hours. Collaborative writing and research experience guided by one or more faculty members; collaborative project and individually produced formal research papers. S, F grading. Credit not granted for more than one of UH 450, 451, 452, 453, 454, 455, 456.

Special Problems V 1-4 May be repeated for credit. S, F grading.

Department of Horticulture and Landscape Architecture


Horticulture

Courses in horticulture are designed to give instruction in fruit, vegetable, and ornamental production, handling, utilization, and management. Emphasis is on developing an understanding of plant growth and development fundamental to crop management. A production and management emphasis is designed to prepare students to be professionals in production, handling and processing, marketing, consulting, government, management, and related fields. A science emphasis is designed to prepare students for graduate study and careers in research and teaching.

The department offers an undergraduate minor in the areas of fruit and vegetable production or environmental horticulture.

Horticultural production and management students are encouraged to minor in business administration or agricultural economics. Horticultural science students are encouraged to take additional courses in chemistry, biochemistry, genetics, mathematics, and physics. An interdisciplinary curriculum in integrated pest management is available to those students whose interests span the areas of horticulture and pest management. The curriculum is described under the entomology section of this bulletin.

The department offers courses of study leading to the degrees of Bachelor of Science in Horticulture, Bachelor of Science in Landscape Architecture, Master of Science in Horticulture, and Doctor of Philosophy.

Degree Program Requirements

Students in horticulture may focus on environmental horticulture, fruits and vegetables, or tree fruit management.

At least 40 of the total hours required for the bachelor’s degree in these programs must be in 300-400-level courses.

ENVIRONMENTAL HORTICULTURE DEGREE PROGRAM (133 HOURS)

Freshman Year

First Semester Hours
Arts & Humanities [H,G] (GER) 3
Bot 120 [B] (GER) 4
Chem 101 [P] or 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3

Second Semester Hours
Chem 102 [P] or 106 [P] (GER) 4
GenEd 110 [A] or 111 [A] (GER) 3
H D 205 [C] or SpCom 102 [C] (GER) 3
Hort 201 4
L A 264 3

Sophomore Year

First Semester Hours
Chem 240 or 340 3 or 4
Hort 231 3
Hort 234 3
Intercultural [I,G,K] (GER) 3
SoilS 201 3

Second Semester Hours
Ag Ec 261 [S] or Econ 102 [S] (GER) 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Hort 232 3
Hort 251 4
Math Proficiency [N] (GER) 3
Summer Session—Hort 399 3

Junior Year

First Semester Hours
Business1 or Science Emphasis2 6
Bot 320 4
Hort 331 3
Hort 356 1
PL P 429 3
Complete Writing Portfolio

Second Semester Hours
Business1 or Science Emphasis2 6
Cpt S Elective 3 or 4
Entom 340 3
SoilS 441 3

Senior Year

First Semester Hours
Business1 or Science Emphasis2 3
Hort 310 or 313 3
Hort 320 3
Hort 321 1
Hort 418 [M] 3
Hort 438 3

Second Semester Hours
Business1 or Science Emphasis2 3
Hort 416 3
Hort 425 [M] 3
Hort 439 3
IPM Elective 2 or 3
Tier III Capstone (GER) 3

1 Business emphasis—Acctg 230 and 6 additional credits in Agricultural Economics and/or Business Administration are required.
FRUIT AND VEGETABLE HORTICULTURE DEGREE PROGRAM (121 HOURS) ✔FYDA

Freshman Year

First Semester Hours
Bot 120 [B] (GER) 4
Chem 105, 106, 340, and 342; BC/BP 364; GenCB 210 or 301; and Stat 412 or Math 171 are required.
Chem 101 [P] or 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3

Second Semester Hours
Chem 102 [P] or 106 [P] (GER) 4
Cpt S Elective 3
H D 205 [C] or SpCom 102 [C] (GER) 3
GenEd 111 [A] (GER) 3
Hort 201 4

Sophomore Year

First Semester Hours
Arts & Humanities [H,G] (Ger) 3
Chem 240 4
Hort 234 3
Hort 310 & 311; 313; or 320 & 321 3 or 4
SoilS 201 3

Second Semester Hours
Ag Ec 201 [S] or Econ 102 [S] (GER) 3
Arts & Humanities [H,G] or Social Science [S,K] (GER) 3
Bot 320 4
Hort 251 4
Math Proficiency [N] (GER) 3

Junior Year

First Semester Hours
Hort 310 & 311; 313; or 320 & 321 3 or 4
Hort 356 1
Intercultural [I,G,K] (GER) 3
Pl P 429 3
Complete Writing Portfolio

Second Semester Hours
Entom 340 3
Environmental Hort Elective 3
GenCB 210 or 301 3 or 4
SoilS 441 3
Elec 3 3
Summer Session—Hort 399 3

Senior Year

First Semester Hours
Hort 418 [M] 3
Hort 310 & 311; 313; or 320 & 321 3 or 4
Tier III Capstone (GER) 3
Elec 3 3

Second Semester Hours
Hort 416 3
IPM Elective 2 or 3
Hort 425 [M] 3
Electives 6

Soil Science emphasis—Chem 105, 106, 340, and 342; BC/BP 364; GenCB 210 or 301; and Stat 412 or Math 171 are required.

TREE FRUIT MANAGEMENT DEGREE PROGRAM (146 HOURS)

The Tree Fruit option in the Horticulture B. S. degree is an integrated, cooperative program between Wenatchee Valley College and the Department of Horticulture and Landscape Architecture. This option is designed to train professional horticulturists for deciduous tree fruit industries. The first half of the program is taken at Wenatchee Valley College, where the educational emphasis is on applied aspects of tree fruit production and management through courses, orchard practicum experiences and internships. Wenatchee Valley College, located in the heart of Washington’s tree fruit industry, has teaching orchards and well equipped facilities. The second half of the program is taken at Washington State University where courses, laboratories and research experience provide students with an advanced knowledge of the science, technology and management of tree fruit production systems. Additional courses are taken to increase the breadth of knowledge about the diversity of horticultural crops and awareness of current issues in horticultural science.

Freshman Year (Wenatchee Valley College)

Fall Quarter
Agri 153 4
Agri 161 5
Chem 110 (WSU [P] GER) 5
Engl 101 (WSU [P] GER) 5

Winter Quarter
Agri 152 4
Agri 162 5
Biol 122 (WSU [B] GER) 5
CIS 115 5

Spring Quarter
Agri 154 2
Agri 163 5
Chem 111 (WSU [P] GER) 5
Math 201 (WSU [N] GER) 5

Summer Quarter
Agri 115 5
Agri 155 2

Sophomore Year (Wenatchee Valley College)

Fall Quarter
Agri 242 4
Agri 264 5
Agri 292 4
Spch 220 (WSU [C] GER) 5

Winter Quarter
Agri 218 4
Agri 265 5
Econ 202 (WSU [S] GER) 5
Foreign Language Elective 5

Spring Quarter
Agri 243 4
Agri 266 5
Agri 292 4
Spch 220 (WSU [C] GER) 5

Summer Quarter
Agri 267 5
Agri 292 4
Foreign Language Elective 5

Junior Year (Washington State University)

Fall Semester
Chem 240 4
GenEd 110 [A] (GER) 3
Hort 499 4
Hort Elective 3 or 4
Complete Writing Portfolio

Spring Semester
Arts & Humanities [H,G] (GER) 3
GenCB 210 or 301 3 or 4
GenEd 111 [A] (GER) 3
Hort 251 4
Intercultural [I,G,K] (GER) 3

Senior Year (Washington State University)

Fall Semester
Bot 320 4
Hort 356 1
Hort 418 3
Hort/AG Elective 3 or 4
Mgt Elective 3
Social Sciences [S,K] (GER) 3

Second Semester
Hort 416 3
Hort 421 3
Hort 425 3
SoilS 441 3
Tier III Capstone (GER) 3

To fulfill the 40-hour 300-400-level requirement, take a 300-400-level course if GenCB 210 is taken.

Minor in Horticulture

A minimum of 16 hours in Hort is required, of which at least 8 hours must be in 300-400-level courses excluding Hort 356, 399, and 499. Hort 201 and 234 or 251 are required. All pass, fail enrollments must be approved by the department chair.

Preparation for Graduate Study

Students with undergraduate majors in the plant sciences, including horticulture, crop science, plant pathology, environmental science, genetics, plant physiology and biochemistry may be well prepared for graduate study in horticulture. Undergraduate students who are pursuing their studies at other institutions, or through other curricula at this institution, and who contemplate graduate work in horticulture should take as many courses in the basic physical and biological sciences as possible.

LANDSCAPE ARCHITECTURE

Landscape architecture is the professional art and science of planning and designing land elements so that the activities of people are in harmony with their environment. The practice ranges in scale from the design of residential and garden landscapes to planning and design of complex projects such as cities and regions.

The curriculum is accredited by the American Society of Landscape Architects (ASLA). It stresses a broadly based course of study emphasizing residential, community, and urban design; site, regional and land use planning, and professional practice methods.

The curriculum is divided into two parts: pre-landscape architecture and landscape architecture. The
opportunity exists to participate in special studies, professional work experiences and foreign study.

**Degree Program Requirements**

**PRE-LANDSCAPE ARCHITECTURE**

Prelandscape architecture (preLA) is a two-year, nondegree course of study that is intended to prepare undergraduate students for the advanced professional curriculum in the upper division. The preLA curriculum concentrates on General Education Requirements (GERs) and basic professional courses. General Education Requirement (GER) courses should be selected with the assistance of a landscape architecture advisor. The completion of preLA prepares the student to make application to the professional major in landscape architecture or entry-level technical positions in various landscape industries. Transfer students who have not completed the equivalent of the preLA course work will be accepted directly into preLA.

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bot 120 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>ES/EP 150 [Q] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
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</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Chem 101 [P] (GER)</td>
</tr>
<tr>
<td>Communication [C, W] (GER)</td>
</tr>
<tr>
<td>FA 101 [H], 201 [H], or 202 [H] (GER)</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
</tr>
<tr>
<td>L A 202</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hort 231</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>L A 101</td>
<td>3</td>
</tr>
<tr>
<td>L A 260</td>
<td>3</td>
</tr>
<tr>
<td>L A 262</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphics Elective</td>
<td>3</td>
</tr>
<tr>
<td>Hort 232</td>
<td>3</td>
</tr>
<tr>
<td>L A 263</td>
<td>3</td>
</tr>
<tr>
<td>L A 365</td>
<td>4</td>
</tr>
<tr>
<td>L A 400</td>
<td>3</td>
</tr>
</tbody>
</table>

**LANDSCAPE ARCHITECTURE (154 CREDITS)**

**FYDA (FIVE-YEAR AGREEMENT)**

The professional five-year course of study is divided into two segments. These are prelandscape architecture (listed above) and the third through fifth-year professional landscape architecture program (BLA). Completion of the five-year program totaling 154 credits leads to the degree of Bachelor of Landscape Architecture and allows the graduate to enter the profession. At least three additional years of professional experience and successful completion of the landscape architectural license examination are necessary for registration as a licensed landscape architect in most states.

To be admitted to the major of L.A., the student should have completed the pre-LA curriculum and submitted an application. Application forms and instructions are available from the Admissions Office and the Department of Horticulture and Landscape Architecture. Applications to the professional program must be submitted prior to April 1. Due to limitations of space, faculty, and budget, admission can be granted to only the most qualified students based on experience, demonstrated abilities, motivation, and academic performance. The following courses (or approved equivalents) must be completed with a passing grade of C or better for students to be admitted into the professional program: Bot 120, Hort 231, 232, L A 101, 260, 262, 365, 400.

Transfer students who have completed the equivalent of the preLA curriculum may apply to the professional program. The entire fourth year of the program is conducted at the Interdisciplinary Design Institute on the WSU Spokane branch campus. Students may choose to complete their fifth year in Spokane or Pullman.

**Junior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Bio S 372, Bot 462, or NATRS 300</td>
<td>3</td>
</tr>
<tr>
<td>Hort 331</td>
<td>3</td>
</tr>
<tr>
<td>L A 362</td>
<td>4</td>
</tr>
<tr>
<td>L A 366</td>
<td>4</td>
</tr>
<tr>
<td>SoilS 201</td>
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Complete Writing Portfolio

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AgTM 346</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>L A 363</td>
<td>4</td>
</tr>
<tr>
<td>L A 367</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 374</td>
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**Senior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>L A 425</td>
<td>3</td>
</tr>
<tr>
<td>L A 450 [M]</td>
<td>3</td>
</tr>
<tr>
<td>L A 460</td>
<td>5</td>
</tr>
<tr>
<td>L A 480</td>
<td>2</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>L A 467</td>
<td>4</td>
</tr>
<tr>
<td>L A 470</td>
<td>4</td>
</tr>
<tr>
<td>L A 475</td>
<td>2</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Elective1</td>
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**Fifth Year**

<table>
<thead>
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<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>L A 485</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>L A 486 [M]</td>
<td>4</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Elective1</td>
<td>6</td>
</tr>
</tbody>
</table>

1 Students will select two specialization options of 9 credits each from the following: Business, Horticulture/Plant Science, Natural Resources/Ecology, Urban Design, Public Policy/Planning, Computer Applications, Self-Directed.

**Description of Courses**

**Horticulture**

**Hort 101 Horticulture and Society 3 (2-3)** Principles and practices of gardening for personal, economic, environmental and social benefits; horticultural technologies; fruits, vegetables, landscape and interior plants.

**201 Introduction to Horticultural Science 4 (3-3)** Prereq Bot 120. Fundamentals of plant growth and development at the cellular and whole plant levels as influenced by environmental and management decisions.

**231 Landscape Plant Materials I 3 (2-3)** Prereq Bot 120 or Hort 201. Characteristics, ecology, nomenclature, identification, selection, and use of important woody and herbaceous landscape plant species.

**232 Landscape Plant Materials II 3 (2-3)** Prereq Bot 120 or Hort 201. Continuation of Hort 231.

**234 Controlled Environments for Horticultural Production 3 (2-3)** Prereq Hort 201. Principles and practices for modifying environmental factors for horticultural production in controlled environments; methods for environmental measurements. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 254).

**251 Plant Propagation 4 (2-6)** Prereq Bio S 103, Bot 120, Hort 101, or 201. Principles and methods of multiplying herbaceous and woody plants and their handling up to useable size. Field trip required.

**304 Growth and Development of Crop Plants 2** Prereq Bio S 104 or Bot 120. Understanding anatomical structure of plants, internal growth regulation, environmental effects on growth, application of knowledge to cropping systems.

**310 Pomology 3** Prereq biological or plant science course. Science and management of deciduous tree-fruit production. Cooperative course taught by WSU, open to UI students (PlSc 461).

**311 Pomology Laboratory 1 (0-3)** Prereq c/l in Hort 310. Cultural practices in deciduous tree-fruit production. Field trip required.

**313 Viticulture and Small Fruits 3** Prereq biological science, botany, or plant science course. Botanical relationships, plant characteristics, fruiting habits, location, culture, marketing, and utilization of grapes, berries, and other small or bush fruits. Field trip required.

**320 Olericulture 3** Prereq Hort 201 or plant science course; SoilS 201. Science, business, and art of vegetable crop production: culture, fertility, growth, physiology, handling, marketing; garden, commercial, greenhouse, tropical, specialty vegetables. Cooperative course taught by WSU, open to UI students (PlSc 320).

**321 Olericulture Laboratory 1 (0-3)** Prereq c/l in Hort 320. Production principles and practices of vegetable crops; plant characteristics, cultivars, nutrition, growth, and development. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 321).

**325 Plant Biotechnology 3** Same as Bot 325.

**331 Landscape Plant Installation and Management 3 (2-3)** Prereq Hort 231, 232. Principles and practices for installation and management of interior and exterior landscapes; specifications, site preparation transplanting, growth control, problem diagnosis.
Department of Horticulture and Landscape Architecture

340 Nursery Management 3 (2-3) Management of commercial nurseries from plant propagation through sale of plants. Field trip required. Cooperative course taught by UI (PlSc 340), open to WSU students.

356 Preparation for Entering the Horticulture Profession 1 Prereq junior in Hort. Resume writing; job applications; interviewing; investigation of job opportunities; contact with employers; internship reports; practice in oral communication.

399 Professional Work Experience V 2-4 May be repeated for credit, cumulative maximum 8 hours. Prereq basic horticulture. By interview only. Planned and supervised work experience. S, F grading.

405 Genetic and Molecular Aspects of Plant Reproduction 2 or 3 Prereq BC/BP 364; Bot 320, GenCB 301. Genetic, molecular, cellular and evolutionary aspects of plant reproductive strategies and their manipulations. Credit not granted for both Hort 405 and 505.

416 Advanced Horticultural Crop Physiology 3 Prereq Bot 320. Physiological processes related to growth, development, and productivity of horticultural crops; advances in recombinant DNA technology; the impact on horticultural practices. Credit not granted for both Hort 416 and 516.


418 [M] Post-harvest Biology and Technology 3 (2-3) Prereq Hort 201; Bot 320. Physical and physiological basis for handling and storage practices; perishable organ ontogeny and physiological disorders; post-harvest environment requirements. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 418).

420 Potato Physiology and Production Technology 2 (1-3) Prereq Hort 201; Bot 320. Physical and physiological principles of production, storage, and processing of potatoes. Field trip required. Credit not granted for both Hort 420 and 520. Cooperative course taught by WSU, open to UI students (PlSc 420).

421 Management of Woody Horticultural Crops 3 Prereq woody horticultural crop production, a plant physiology course. Management strategies for improving the productivity and resource utilization efficiency of woody fruit tree, vine, and ornamental crops. Credit not granted for both Hort 421 and 521.

425 [M] Current Topics in Horticulture 3 Prereq Bot 320; Hort 234, 311, or 320. Classical, current scientific, and popular literature on horticultural topics.

438 Ornamental Plant Production I 3 (2-3) Prereq Hort 234. Fall and winter production practices of greenhouse and nursery crops. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 438). Credit not granted for both Hort 438 and 538.

439 Ornamental Plant Production II 3 (2-3) Prereq Hort 234. Production requirements for spring greenhouse and nursery crops; garden center management considerations. Field trip required. Credit not granted for both Hort 439 and 539.

445 [M] Plant Breeding 3 Same as CropS 445.

469 Seed Production 3 Same as CropS 469.

470 Potato Science 3 Prereq Hort 201. Origin, culture, harvesting, handling, storage, and marketing of the potato. Cooperative course taught by UI (PlSc 490/590), open to WSU students.

475 Postharvest Pathology 3 Same as Pl P 475.

480 Agricultural Issues 1 Prereq Bio S 103, junior standing. Facts regarding current issues about pollution, the environment, marketing, and endangered species; formulation of position statements regarding current issues.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Advanced Topics in Horticulture V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq Bot 320. Current topics and research techniques in horticulture.

505 Genetic and Molecular Aspects of Plant Reproduction 2 or 3 Graduate-level counterpart of Hort 405; additional requirements. Credit not granted for both Hort 405 and 505.

509 Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Continuous enrollment required for regularly enrolled graduate students in Hort. Recent developments in horticulture. S, F grading.

510 Graduate Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Literature reviews and research progress reports.

512 Advanced Pomology 3 Modern concepts, research, and problems of the fruit industry as reflected by current literature; practice in critical review of scientific literature.

515 Seminar in Plant Physiology 1 May be repeated for credit; cumulative maximum 4. A cross-discipline seminar, including botany, crop and soil sciences, horticulture, plant pathology, and plant physiology.

516 Advanced Horticultural Crop Physiology 3 Graduate-level counterpart of Hort 416; additional requirements. Credit not granted for both Hort 416 and 516.

520 Potato Physiology and Production Technology 2 (1-3) Graduate-level counterpart of Hort 420; additional requirements. Credit not granted for both Hort 420 and 520. Cooperative course taught by WSU, open to UI students (PlSc 520/570).

521 Management of Woody Horticultural Crops 3 Graduate-level counterpart of Hort 421; additional requirements. Credit not granted for both Hort 421 and 521.

533 Plant Tissue, Cell, and Organ Culture 3 (1-6) Prereq senior standing. By interview only. Current plant tissue techniques used in research and industry to solve problems. Cooperative course taught jointly by WSU and UI (PlSc 533).

536 Plant Genetic Engineering Laboratory 2 (0-6) Same as CropS 536.

538 Ornamental Plant Production I 3 (2-3) Graduate-level counterpart of Hort 438; additional requirements. Credit not granted for both Hort 438 and 538.

539 Ornamental Plant Production II 3 (2-3) Graduate-level counterpart of Hort 439; additional requirements. Credit not granted for both Hort 439 and 539.

570 Plant Molecular Genetics 3 Same as GenCB 570.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Description of Courses

Landscape Architecture

101 Landscape Architecture Graphics 3 (1-6) Basic mechanical and freehand drawing; use of various drafting media, two- and three-dimensional drawing, lettering, and rendering techniques.

202 [H] The Built Environment 3 Same as Arch 202.

250 Beginning Landscape Design and Construction 3 (2-3) Prereq sophomore standing; by interview only. Basic landscape architecture design and construction for small spaces.

260 History of Landscape Architecture 3 Historical development in the practice and profession of landscape architecture throughout the world, circa B.C. to present. Cooperative course taught jointly by WSU and UI (LA 289).

262 Landscape Architectural Design I 3 (2-3) Prereq Arch 102 or LA 101. Basic design and graphic techniques related to solving of elementary design problems.

263 Landscape Architectural Design II 3 (0-6) Prereq LA 262. Application of basic design principles and design process to site planning; integration of design graphics and verbal/graphic presentations.

264 Basic Landscape Design 3 For nonmajors. Design theory and principles; site design factors; design process application; construction criteria; graphic construction communication; landform; circulation systems; plant uses.

299 Professional Work Experience: Contracting and Maintenance 1 or 2 Prereq major in preLA or LA. Project planned with and approved by faculty as professional work experience; written report and presentation to faculty required.

362 Landscape Architectural Design III 4 (2-6) Prereq LA 263, junior in LA. Professional site design processes; concentration on planting and site planning, design with urban community, ecological, and open-space projects.

363 Landscape Architectural Design IV 4 (2-6) Prereq LA 263, junior in LA. Professional site design processes; concentration on recreation facilities and site planning within residential, urban, institutional, and regional projects.

365 Landscape Architectural Construction I 4 (2-6) Prereq LA 262. Basic grading and surface drainage facilities, subsurface drainage systems, horizontal and vertical road design, site design, and construction document techniques.


399 Professional Work Experience: Office Practice 1 or 2 May be repeated for credit; cumulative maximum 4 hours. Prereq junior in L. A. Planned professional work experience in design and office practice as approved by faculty; written report and presentation to faculty required. S, F grading.

400 Introduction to Computer Graphics in Landscape Architecture 3 (2-3) Applications and techniques in computer graphics; 2-D and 3-D computer-aided design, animation, and paint systems; basics in operating systems.

425 Issues in Landscape Evolution and Design Theory 3 Prereq senior standing. Investigation of historical relationships between humans and environment; exploration of major theoretical approaches to design, planning, and management of landscapes.

440 Advanced Application in Computer-Aided Design 3 Prereq introductory course in CAD. Advanced applications in 2-D and 3-D CAD, including photorealistic modeling and rendering, landform analysis, animation, and customization.

450 [M] Principles and Practice of Planning 3 Same as ES/ROP 450.

460 Interdisciplinary Design Studio 5 (2-6) Prereq senior standing in L. A. Interdisciplinary design/problem solving in an urban environment; collaboration with students in other design professions; real-world, service-learning problems.

467 Regional Landscape Inventory and Analysis 4 (2-6) Prereq Bio S 120; Geol 101 or SoilS 201. Application of ecological planning process for landscape inventory and analysis. Credit not granted for both L A 467 and ES/ROP 567.

468 [M] Senior Creative Project 4 Prereq L A 475. Individually developed studio and scholarly project conducted with a faculty mentor; demonstration of advanced verbal, graphic, and written presentations required.

470 Landscape Architectural Design V 4 (1-9) Prereq senior in L. A. Advanced group and individual landscape architectural design and planning projects; professional applications of site design theory and design processes.

475 Senior Project Proposal 2 Prereq senior in L. A. Program planning for senior project. S, F grading.

480 Professional Practice 2 Prereq senior in L. A. Current office practices, design and construction management techniques; introduction to construction contract legal requirements within the practice of landscape architecture. Cooperative course taught jointly by WSU and UI (LA 358).

485 Senior Creative Project I 4 (0-8) Prereq L A 425. Individually developed studio or scholarly project conducted with faculty advisor; collection, analysis, and interpretation of project information.

486 Senior Creative Project II 4 (0-8) Prereq L A 485. Individually developed studio or scholarly project conducted with faculty advisor; synthesis of information, solution development, and documentation.

491 Topics in Design 3 Prereq junior standing.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Program in Hotel and Restaurant Administration

Director, W. T. Umbreit; Taco Bell Distinguished Professor, W. Maynard; Professors, D. Rutherford, D. Smith; Associate Professor and Associate Director, C. Riegel; Associate Professors, K. Kendall, M. C. Paxson; Assistant Professors, P. Díaz, M. E. Gustin; Assistant Professor and Coordinator, W. H. Samenfink; Lecturers, D. Dolquist, T. Mulligan, L. Reed; Professor Emeritus, L. Kreck.

The program provides instruction at WSU Pullman and also to qualified transfer students at the off-site locations of Seattle, Washington, and Brig, Switzerland. This program provides specialized study of the major organizational and administrative problems of the hotel and restaurant industry. The program is intended to prepare graduates for the managerial opportunities available in the industry here and abroad. The curriculum provides for the well-rounded education of the hotel, restaurant, club, and institutional executive. It includes courses in the arts and sciences, economics, business administration, and foods, as well as in hotel and restaurant management. To be eligible for certification as a major in hotel and restaurant administration, students must have at least 30 semester hours credit and meet current cumulative g.p.a. and core business course g.p.a. standards. The course of study leads to the degree of Bachelor of Arts in Hotel and Restaurant Administration.

Degree Program Requirements

All students majoring in hotel and restaurant administration must see their advisor and have a degree audit upon completion of 45 hours of credit. By the completion of 60 hours of credit, all students must have completed their English, math and 100-200-level CBE core courses. These required courses are: Engl 101; Math 172 or 201 (Math 201 recommended); Math 171 or 202 (Math 202 recommended); MIS 150; B Law 210; Dec S 215; Acctg 230, 231; and Econ 101, 102. Enrollment in 300-level CBE business and hotel courses is restricted to those students who have met these requirements.

All students majoring in hotel and restaurant administration must complete 50% of their course work outside of the College of Business and Economics. Nine hours of economics and four hours of Dec S 215 are counted as outside of the CBE to meet this 50% rule.

Residence Requirements: 1) At least 50% of business core and major specialization course requirements must be taken at WSU; 2) At least 9 300-400-level business/economics/hotel courses must be taken in residence (classroom setting) at WSU; 3) The last 30 hours of course work must be taken at WSU; 4) A maximum of 9 hours of correspondence courses may be used to satisfy business/hotel course requirements.

The chair of the department and/or the dean of the college must approve in writing any portion of the 300-400-level credit which is to be satisfied by transfer, correspondence, independent study, or other credit which may not carry WSU grade points. Additional transfer, correspondence, and independent study credit (within university limits on these credits) may count toward the 120 hours required for the degree and/or satisfy requirements other than major courses.

Only general elective courses that are not GERs or core/major requirements may be taken pass, fail. An honors thesis is required for Honors students.

HOTEL AND RESTAURANT ADMINISTRATION DEGREE PROGRAM (120 HOURS) OFYDA

Freshman Year

First Semester Hours

GenEd 110 [A] (GER) 3
Enlg 101 [W] (GER) 3
Mktg 360 3
Acctg 230 3

Second Semester Hours

Acctg 231 3
Fshn 121 3
H A 220 1

Sophomore Year

First Semester Hours

Acctg 230 3
Bio 171 [N] or 202 [N] (GER) 3 or 4

Second Semester Hours

GenEd 111 [A] (GER) 3
Dec S 215 4

Junior Year

First Semester Hours

H A 385 5
Mktg 301 3

Second Semester Hours

Mktg 360 3

Physical [P] Sciences (GER) 3 or 4
Complete Writing Portfolio or Semester Abroad In Switzerland

Program in Hotel and Restaurant Administration
235 Principles of Tourism
181 Introduction
Hotel and Restaurant Administration
Description of Courses
for HRA. Opportunities are available to all H A
Dec S 215, Econ 101, 102, Math 201, 202, MIS
following classes: Acctg 230, 231, B Law 210, if they are junior status and have completed the
members in related employment before entering WSU.
strongly advised that the student utilize both sum-
mary in the hospitality industry. However, it is
before transferring. In addition, the student should
should have made appropriate academic progress
rant administration from a two-year program
358 at Seattle and Brig sites.
For a total of 7 hours of Biological and Physical
Sciences.
1 For a total of 7 hours of Biological and Physical
Sciences.
2 H A 356 and 357 required as substitute for H A
358 at Seattle and Brig sites.
Transfer Students
A student planning to transfer to hotel and restaur-
ant administration from a two-year program should have made appropriate academic progress
before transferring. In addition, the student should have 500 hours (one summer) of gainful employ-
ment in the hospitality industry. However, it is
strongly advised that the student utilize both sum-
ners in related employment before entering WSU.
Students may be admitted to the Seattle program
if they are junior status and have completed the
following classes: Acctg 230, 231, B Law 210, Dec S 215, Econ 101, 102, Math 201, 202, MIS 150. Qualified graduates of the International Col-
lege of Hospitality Administration in Brig,
Switzerland, may be admitted to the Swiss Center for HRA. Opportunities are available to all H A
majors for a semester abroad at the Swiss Center.

Description of Courses
Special Notice: Enrollment in 300-level ho-
tel courses by non-hotel majors is restricted to
students with junior standing. Enrollment in
400-level hotel courses is open only to jun-
iors and seniors officially certified into de-
ger programs that require these hotel cours-
es. Enrollment in 300-400 level hotel courses by non-hotel majors also requires permission from the Program in Hotel and Restaurant Administration.

Hotel and Restaurant Administration
H A
181 Introduction 3 Historical development and
organizational structure of the hospitality ser-
vice industries. Cooperative course taught by
WSU, open to UI students (ReMgt/Rec 181).
201 Quantity Food Production 3 Principles of
menu writing, sanitation and food preparation
applied to management of quantity food pro-
duction and service.
220 Introduction to Industry Experience 1 Prepa-
ration for work in hospitality/business organiza-
tions; resume writing, interview skills, use of
Career Services, career dress. S, F grading.
235 Principles of Tourism 3 Underlying prin-
ciples and practices in domestic tourism. Co-
operative course taught by WSU, open to UI
students (ReMgt 236/Rec 235).

280 Lodging Systems and Procedures 3 Manage-
ment functions relating to the planning and op-
erational policies of various hotel departments.
284 Managed Services 3 Management systems of
the segment of the hospitality industry relat-
ing to contract and self-operated management
companies.
301 Introduction to Conventions and Meetings
Industry 3 Prereq junior standing. Overview of
industry, including components, interrela-
tionships, economics and theory.
310 Hospitality Industry Financial Control 3
Prereq Acctg 231; junior standing. Interna-
tional control through financial and account-
ing systems for hotels and restaurants.
311 Law of Innkeepers 3 Prereq B Law 210. Po-
tential legal liability of innkeepers in tort, con-
tract, agency relationships and government
regulation.
320 Industry Experience 1 (0-3) Prereq H A ma-
jor; H A 220. Students work in various hospi-
tality operations for 1,000 hours; work perfor-
manence must be documented. Two supervised
reports required. S, F grading.
350 Beverage Management 3 Prereq junior
standing. Beverage operations; detailed study of
wines and spirits; consideration of social
impacts such as trends in consumption.
356 Food and Beverage Systems Design and
Analysis 3 Prereq FSHN 120; H A 280. Man-
gement theory, problems, and cases in food and
beverage operations, work methods; sani-
tation; research.
357 Food and Beverage Systems Control 3 Prereq
Acctg 231; Cpt S 105. Problems encountered in
the management of food and beverage opera-
tions such as control and forecasting.
358 Foodservice Systems and Control 5 (3-6)
Prereq Acctg 230, FSHN 120. Operational
control processes, control systems, and cost
analysis procedures in food and beverage
management.
359 Food Service Operations and Product Lo-
gistics 4 (3-3) Prereq FSHN 120. Management
of food service operations, control systems,
and distribution networks.
375 Club Management 2 Prereq junior standing.
The identification of managerial problems unique to club operations and their potential
solutions.
381 [M] Hospitality Management and Organi-
zation 3 Prereq H A 181. Advanced manage-
ment methods and concepts utilized in the ad-
ministration of hospitality service industries.
Cooperative course taught by WSU, open to
UI students (ReMgt 381/Rec 382).
382 Multi-Unit Management 3 Prereq H A 381.
Concepts and principles involved in managing
multiple restaurant units; finance, marketing,
human resources, operations, and financial
management. Special attendance hours may be
required.
383 Meeting and Convention Management
3 Prereq H A 301. Theory and practice of meet-
ning/convention/event management, including
goals, organization on- and off-site opera-
tions, evaluation.
386 Applied Industrial Relations 2 Prereq junior
standing. Labor relations; history, organiza-
tion, and elections of bargaining agents, nego-
tiation and administration of contracts.
387 [M] Marketing Strategy and Development
3 Prereq Mktg 360. Theory and practice; prob-
lems in guest relations, special sales efforts,
intramural promotion, research.
391 Operational Analysis 3 Prereq Acctg 231;
Dec S 215; Fin 325. Using management tools in
analyzing operational effectiveness of ho-
tel and restaurant organizations.
408 [M] Management in Hotel and Restaurant
Operations Management 3 Prereq junior standing. Design and management of service
delivery systems through operations
management topics from a service perspective.
409 Case Studies and Research 3 Prereq H A 358,
480, 491. Use of the case method and comput-
erized statistical programs in the analysis of
administrative practices of organizations.
409 Seminar V 1-3 May be repeated for credit; cu-
mulative maximum 6 hours. Prereq junior
standing. Selected topics.
497 Special Topics V 1-3 May be repeated for
credit; cumulative maximum 6 hours. Topics of
special interest within the area of hotel and
restaurant administration.
498 Hotel and Restaurant Administration In-
ternship V 2-15 May be repeated for credit;
cumulative maximum 15 hours. Cooperative edu-
cational internship with a business, government
or nonprofit organization. S, F grading.
499 Special Problems V 1-4 May be repeated for
credit. S, F grading.
535 International Tourism Strategy and Plan-
ing 3 Tourism components; social, econ-
omic, and cultural effects on societies; the
management of tourism businesses.
580 Hospitality Services Marketing 3 Prereq
Mktg 505. Services marketing concepts and
principles applied to hospitality organiza-
tions; strategies to market services and control
quality.
581 Services Management 3 Prereq Mgt 501. De-
sign and management of service systems in
hospitality operations; concept of customer in-
teraction, personnel activities and inventory.
597 Special Topics 3 Strategic business policy, con-
cepts, and practices in hospitality management.
600 Special Projects or Independent Study Vari-
able credit. S, F grading.

Department of Human Development
Professor and Chair; J. Teachman; Professors; R.
Peterson, D. Price; Associate Professors, K. Barber,
J. Dillman, E. Massier, E. Murphy, L. Parker, M.
Ray; Assistant Professors, R. Boyd, M. Deen, A. Maltus,
P. Mills, M. Young; Instructors, D. Handy, A.
Lawrence, M. Mason, M. Wandschneider.

Students seeking a bachelor of arts degree in this de-
partment focus on human development across the
lifespan as it occurs within the family, and is linked to a variety of contexts within communities. The program centers on understanding the complexity of physical, social, cognitive, and affective individual development with emphasis on development within the family. The curriculum examines human and family development across the lifespan (i.e., child, adolescent, younger and older adults). Opportunities are also available to become state certified as a teacher in preschool to third grade or as a family and consumer sciences teacher in junior high or senior high school.

In addition to the teaching certifications, the department offers two emphasis areas. The first emphasis is human development. Within this emphasis students prepare to work with children, adolescents, or older adults in a variety of professional settings. These may include positions in foster parent programs, adoption agencies, various child care or head start programs, teen centers, nursing homes, and other community-based programs for the elderly. The second emphasis is family studies. Students choosing this emphasis will be prepared for a wide range of careers, most of which focus on some aspect of services offered to families or family members by public agencies and/or private business.

Students completing a human development emphasis or family emphasis degree are required to complete a certified minor in another department. A minor should be selected in consultation with a human development faculty advisor, preferably by the end of the third semester.

Both human development and family emphases provide preparation for graduate work leading to teaching, research, counseling, or administrative positions in social service, resource management, or pre-family therapy.

The department also offers a Master of Arts degree in Human Development. More information is available from the graduate school.

The outline below describes a course of study leading to a degree of Bachelor of Arts in Human Development: with emphasis in either human development or family.

Additionally, two minors are offered; one in general human development and one in early childhood (see description below).

### Degree Program Requirements

At least 40 of the total hours required for this bachelor’s degree must be in 300-400-level courses.

#### HUMAN DEVELOPMENT EMPHASIS OR FAMILY EMPHASIS DEGREE PROGRAMS (120 HOURS)

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<th>Program</th>
<th>Hours</th>
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<tr>
<td><strong>Sophomore Year</strong></td>
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<td>First Semester</td>
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<td>Biological [B] Sciences (GER)</td>
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<td>H D 203</td>
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<td>H D Elective</td>
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<td>Intercultural [I, G, K] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Second Semester</td>
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<td>H D 202</td>
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<td>H D 410</td>
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<td>Minor Elective^</td>
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<td>Physical [P] Sciences (GER)</td>
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<td>Elective</td>
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<td>Junior Year</td>
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<td>H D Emphasis 320^ or 420 [M]^</td>
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<td>H D Elective</td>
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<td>Complete Writing Portfolio</td>
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<td>H D 410 [M]</td>
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<td>H D 446^ or 498^</td>
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<td>Minor Elective</td>
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<td>Biological [B] Sciences (GER)</td>
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<td>Physical [P] Sciences (GER)</td>
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<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Junior Year</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Biological [B] Sciences (GER)</td>
<td></td>
</tr>
<tr>
<td>H D 203</td>
<td>3</td>
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<tr>
<td>H D Elective</td>
<td>3</td>
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<tr>
<td>Intercultural [I, G, K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

^1 Psych 105 [S] or Soc 101 [S] are strongly recommended.

^2 FSHN 130 [B] is strongly recommended.

^3 Courses are only offered during this semester each year.

^4 A minor must be decided at the end of the third semester.

^5 Students in the Human Development Emphasis should take H D 420 [M]; students in the Family Emphasis Program should take H D 342.

^6 H D 446 requires a half-day each day, 5 days a week for a semester and can be put into the schedule any time after taking H D 342.

^7 The internship course (H D 498) can be taken during the summer semester of the junior or senior year. H D 330 should be taken no more than one to two semesters before taking the internship.

Students majoring in human development may choose to become certified in the State of Washington to teach in preschool through third grade (P-3), and kindergarten through eighth grade (K-8), or family and consumer sciences. They must fulfill course requirements specified by the State of Washington. Note that the certification programs available in human development are offered in conjunction with the WSU College of Education. Additionally, those teacher certification students who wish to have a supporting endorsement from the Department of Human Development must meet with the appropriate human development advisor to obtain the list of approved courses.

### FAMILY AND CONSUMER SCIENCES DEGREE PROGRAM (126 HOURS)

#### Freshman Year

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First Semester</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>FSHN 130 [B] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>H D 201</td>
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<td>Math [N] (GER)</td>
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#### Sophomore Year

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First Semester</td>
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<td></td>
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<tr>
<td>H D 203</td>
<td>3</td>
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<td>H D Elective</td>
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<td>Intercultural [I, G, K] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>H D 202</td>
<td>3</td>
</tr>
<tr>
<td>H D 410</td>
<td>3</td>
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<tr>
<td>Minor Elective^</td>
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<tr>
<td>Physical [P] Sciences (GER)</td>
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<td>3 or 4</td>
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<tr>
<td>Elective</td>
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#### Junior Year

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Biological [B] Sciences (GER)</td>
<td></td>
</tr>
<tr>
<td>H D 203</td>
<td>3</td>
</tr>
<tr>
<td>H D Elective</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [I, G, K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>H D 410</td>
<td>3</td>
</tr>
<tr>
<td>H D 446^ or 498^</td>
<td>4 or 6</td>
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<tr>
<td>Minor Elective^</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>6</td>
</tr>
</tbody>
</table>

1 Courses are only offered during this semester each year.

2 Chem 101 strongly recommended.

3 Select two from: AMT 215, 216, 317.

4 Econ 101 [S] or 102 [S] strongly recommended.
### Freshman Year

**First Semester**
- Engl 101 [W] (GER) 3
- Gen Ed 110 [A] (GER) 3
- H D 101 3
- Psych 105 [S,K] (GER) 3
- Science [B, P, Q] (GER) 3

**Second Semester**
- Gen Ed 111 [A] (GER) 3
- H D 201 3
- H D 204 3
- Soc 101 [S,K] (GER) 3
- SpCom 102 [C] (GER) 3

### Sophomore Year

**First Semester**
- Arts & Humanities [H,G] (GER) 3
- Biological Sciences [B] (GER) 3 or 4
- Engl 201 [C,W] (GER) 3
- H D 341 3
- Math 251 3

**Second Semester**
- H D 302 3
- H D 342 4
- Math 252 [N] (GER) 3
- Physical Sciences [P] (GER) 3 or 4
- T & L 300 1

### Junior Year

**First Semester**
- Kin 473 3
- Mus 388 3
- T & L 306 3
- T & L 352 3
- T & L 371 3
- Complete Writing Portfolio 3

**Second Semester**
- EdPsy 401 2
- T & L 307 2
- T & L 320/321 3
- T & L 385 2
- T & L 403 2
- T & L 483 2

### Senior Year

**First Semester**
- Fa 390 2
- H D 350 3
- H D 446 6
- Intercultural Studies [I,G,K] (GER) 3

**Second Semester**
- H D 410 3
- H D 430 3
- H D 449 3
- Sp Ed 301 3
- Tier III Capstone (GER) 3

### Directed Teaching
- T & L 415 16

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*H D 446 requires a half-day each day, 5 days a week for a semester and can be put into the schedule any- time after taking H D 342.*

### Minor in General Human Development

Those wishing to minor in general human development must take the following courses (18 credit hours): H D 101, 201; 202 or 203; 204 and 6 additional 300-400-level H D credit hours.

### Minor in Early Childhood

Students obtaining a degree in elementary education and wishing to obtain a supporting endorsement in early childhood must take the following courses: H D 101, 201, 204, 302, 341, 342, 449; plus one of: H D 403, 410, or 420.

### Description of Courses

#### Human Development

**H D 101 [S] Human Development Across the Lifespan** 3 Overview of lifespan development from a psychosocial ecological perspective; individuals, families, organizations, and communities and their interrelationships.

**H D 201 Human Development - Prenatal Through Age 8** 3 In-depth examination of growth and development from the prenatal period through age 8 in context of family, community and society.

**H D 202 Human Development - Middle Childhood Through Adolescence** 3 In-depth study of school-age child and adolescent; observation and volunteer experience; theories and their application.

**H D 203 Human Development - Adulthood Through the Older Years** 3 In-depth study of individual development from young adulthood through later years within the social context of family and community.


**H D 205 [C] Communication in Human Relations 3** (2-2) Developing an understanding of human behavior and learning skills in communication and leadership.

**H D 300 Child Abuse and Neglect** 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Examination of causes, identification, reporting, and treatment of children who are abused and/or neglected.

**H D 301 Families in Crisis** 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Examination of the nature and course of family crisis, using a family systemic approach, including principles used in intervention strategies.

**H D 302 [M] Parent-Child Relationships** 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Parenting in contemporary society with focus on reciprocity of parent-child relationships and diversity of families.

**H D 305 Gerontology** 3 Prereq 6 hours in H D or social sciences. Examination and analysis of social context of aging including public policy, implications of demographic shifts, and quality-of-life issues.

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*FHSN 130 [B] is strongly recommended.

*Mus 153 strongly recommended as it is a prerequisite for Mus 388.

*Courses are only offered during this semester each year.*

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**Research Approaches to Human Development** 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Overview of research techniques in human development; methods of evaluating research products.

**Resource Management and Problem Solving** 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Styles of managing material, human and environmental resources with families; various approaches to problem solving with individuals and families.

**Professional Preparation** 2 Prereq 12 hours in H D. Human service career preparation through: career exploration; relating students’ skills and educational plans to professional plans; cover letters; resumes; interviewing.

**Learning and Guidance in Early Childhood** 3 Prereq H D 101 or 201; 204. Theories of child guidance; understanding of child behavior; strategies and techniques for effective group and individual guidance of young children.

**Curriculum for Early Childhood Programs** 4 (3-3) Prereq H D 101, 201, 341. Planning and implementation of developmentally appropriate curricula for use in programs serving young children.

**Managing Behavior in Early Childhood Settings** 3 Prereq H D 101 or 201; 204. Principles and strategies for management of children’s individual and group behavior in early childhood settings; professional and ethical responsibilities.

**Middle Childhood and School Age Care** 3 Prereq 6 hours in H D, Psych, or Soc. Understanding and planning school age care programs.

**Diversity in Contemporary Families** 3 Prereq 6 hours in H D or social science. Preparation for students in human service professions to work with ethnic, cultural, economic, language, gender, religious, and other types of diversity.

**Death and Dying** 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Death and dying throughout life and in different contexts; manner of death, grief, and legal and ethical considerations.

**Families in Poverty** 3 Prereq H D 101, 204; or 6 hours in H D or social sciences. Examining poverty in US and globally; description of groups most often poor; identification of effective solutions and successful interventions.

**Work and Family** 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Issues related to work and family; workplace environments; fostering effective policy responses to family needs; role of work-family coordination. Credit not granted for both H D 406 and 506.

**Directed Teaching, Agriculture and Home Economics** 4-10 Same as Ag Ed 407.

**Advanced Adolescent Development** 3 Prereq 6 hours in Anth, H D, Psych, or Soc. In-depth examination of theories and research; developmental issues and prevention and intervention programs for school-aged child and adolescent.

**Current Consumer Issues** 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Analysis of the consumer role; ecological perspective; interaction of consumers, government, market; effects on communities, families, and individuals.
410 [M] Public Policy Issues Impacting Families and Individuals 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Family policy issues in a changing society; ecological perspective; relationship of public policy to communities, organizations, families, and individuals.

420 [M] Application of Human Development Theories 3 Prereq 6 hours in Anth, H D, Psych, or Soc. In-depth examination of theories and their use in understanding individual development in context of family and community.

430 Professional Skills for Working with Individuals and Families 3 Prereq 3 hours in H D; junior standing. Development of skills important for effective human service professionals: communication, group dynamics, supervision, leadership, ethical behavior, cultural sensitivity, and others.

446 Practicum in Early Childhood Programs V 3 (0-9) to 6 (0-18) May be repeated for credit; cumulative maximum 12 hours. Prereq H D 341, 342. Teaching in department’s child development laboratory; emphasis on skill building in working with diverse groups and building partnerships with families.

449 Seminar in Early Childhood Education V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq H D 341, 342. Identification and examination of current issues and trends in early childhood education with emphasis on child, family, and community concerns.

464 Administration of Early Childhood Programs 3 Organization, administration, and management of early childhood programs; finance, program development, service delivery, personnel concerns, resource development, and evaluation. Available ONLY as a Distance Learning Flexible Enrollment Course.

480 Instructional Strategies 5 Prereq EdPsy 301, H D 201, 202, or 203; junior standing. Methods for teaching life skills, parent education, and youth development programs through extension, community agencies, and schools.

482 Child Assessment and Evaluation 3 Prereq H D 201; 6 additional hours in H D. Understanding aspects of assessment and evaluation of young children; selection, administration, summary development, ethics and professional responsibilities, evaluation and follow-up.

485 Participation in Human Development Research V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Prereq 9 hours in H D; junior standing. Supervised participation in faculty research including data collection, analysis, literature review, preparation of findings. S, F grading.

498 Field Placement V 4 (0-12) to 8 (0-24) May be repeated for credit; cumulative maximum 8 hours. By interview only. Prereq H D 330. Self-initiated, supervised work experience with appropriate private organizations, businesses, or government agencies; interaction with professionals in related fields. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

506 Work and Family 3 Graduate-level course part of H D 406; additional requirements. Credit not granted for both H D 406 and 506.

510 Seminar in Human Development I Introductory to human development profession, departmental faculty and their research, WSU resources, conducting research, writing thesis; preparation for field placement.

511 Theory and Substance of Human Development I 3 Prereq graduate standing. Human development theories; application to life span development, cultural variations, resources, problem solving, interaction of families and individuals with other systems.

512 Theory and Substance of Human Development II 3 Prereq H D 511. Continuation of 511; theory and application to concepts and issues in human development.

513 Research Methods in Human Development I 3 Prereq graduate standing. Introduction to process of research and methods in human development; techniques of research, data collection, and data analysis procedures. Cooperative course taught by WSU, open to UI (FCS 513).

514 Research Methods in Human Development II 3 Prereq H D 513. Integration of formal decision making into the social science research process; procedures appropriate for experimental, quasi-experimental and field research. Cooperative course taught by WSU, open to UI students (FCS 514).

515 Seminar 2 Prereq H D 510, 512, 514, 598 or c/o. Application of knowledge in professional settings, analysis and integration of internship experience with theoretical and substantive expertise.

520 Adolescence 3 Prereq graduate standing. In-depth examination of theories and research, developmental issues and prevention and intervention programs for school-aged child and adolescents.

535 Program Development in Child, Family, and Consumer Studies 3 Prereq graduate standing. Analysis and development of program delivery systems, curricula and evaluation models. Cooperative course taught by UI (FCS 554), open to WSU students.

540 Effective Intervention Programs 3 Prereq H D 530. Innovative effective prevention and intervention programs from theoretical, applied, and outcome evaluation perspectives.

550 Seminar on Family Relationships 3 Prereq graduate standing. Survey of family studies topics and issues examined from a research point of view.

555 Parent-Child Relationships 3 Prereq graduate standing. The developing family; patterns of child rearing. Cooperative course taught by UI (FCS 560), open to WSU students.

560 Seminar in Child Development 3 Prereq graduate standing. Survey of literature on selected areas in child development; discussion of research and application related to current issues and trends.

570 Families and the Economy 3 Prereq graduate standing. Family/household as an earning and consuming unit; theoretical and policy approaches to income and household production and consumer behavior.

575 Family Resource Management 3 Prereq graduate standing. Management of economic and human resources with focus on family structure in all socioeconomic and age groups. Cooperative course taught by UI (FCS 560), open to WSU students.

580 Families, Community and Public Policy 3 Prereq H D 513, 514, or approved graduate research methods course. Analysis of family policy research; role of family policy research in public policy and knowledge building processes. Cooperative course taught by WSU, open to UI students (FCS 580).

586 Special Topics in Human Development V 1-3 May be repeated for credit; cumulative maximum 8 hours. Prereq senior standing. Supervised instructional practicum for departmental majors. S, F grading.

598 Professional Internship 3 Prereq H D 510. Supervised individual experiences with related organizations, businesses, or government agencies; opportunities for interaction with professionals in related fields. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

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**Humanities Courses**

The humanities curriculum consists of a series of interdisciplinary courses designed to introduce students to some of the basic concepts of civilization through the study of representative masterpieces of literature, music, art, and related fields. The courses numbered 101, 202, 303, and 304 provide a survey of western civilization from ancient times to the twentieth century.

**Using Humanities courses as part of General Studies-Humanities Major**

WSU-Pullman students who are interested in the interdisciplinary study of culture can use a number of the courses listed below as a minor concentration in a degree program in General Studies-Humanities. A recommended sequence would include at least three from Hum 101, 202, 303, 304, which provide students a survey of arts and thought from ancient times to the present. Any of the other humanities courses, including the study-abroad option, could be used as well. Students of branch campuses, who want a coherent, minor concentration in humanities, should consult their advisors.
Description of Courses

Humanities

Hum 101 [H] Humanities in the Ancient World 3 Integrated humanities: literature, philosophy, history, and art of the ancient world.

103 [H] Mythology 3 The theory of mythology and use of myths in art, literature, and music; Graeco-Roman and one other.

198 [H] Humanities in the Ancient World: Honors 3 Integrated humanities: literature, philosophy, history, and art of the ancient world.

202 [H] Humanities in the Middle Ages and Renaissance 3 Integrated humanities: exploring ideals of humanism in literature, philosophy, history, art, and music of the Middle Ages and Renaissance.

221 Topics in Humanities—Study Abroad 3

222 Topics in Humanities—Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.

224 Topics in Humanities—Study Abroad 3

303 [H] Reason, Romanticism, and Revolution 3 Integrated humanities: European literature, philosophy, history, art, and music from the 18th century to WWI.

304 [H] Humanities in the Modern World 3 Literature, philosophy, art, architecture, film, music since World War I; major works reflecting influential movements and concerns of the modern world.

322 Topics in Humanities Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.

324 Topics in Humanities Study Abroad 3

335 [H] The Bible as Literature 3 Same as Engl 335.

338 Topics in Humanities 3 May be repeated for credit; cumulative maximum 6 hours. Interdisciplinary, international topics in the humanities (art, architecture, music, literature, philosophy, film).

340 [H] American Foundings 3 Examination of the differing assumptions about the nation in such founding texts as The Federalist Papers and Emerson’s Essays.

410 [H] Love in the Arts 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. Concepts of love around the world and in history through literature, art, music, dance, and theater.

499 Special Problems 3-4 May be repeated for credit. S, F grading.

Interdisciplinary University Courses

Description of Courses

University

100/101 College Majors and Career Choice 1 Career development and the decision-making process; exploration of academic majors and careers.

300 Accessing Information for Research 1 Effective research strategies in the disciplines, including emerging information resources, such as Internet.

590 Preparation for College Teaching 2 Prereq graduate student/TA appointment. Cross-discipline instructional development for graduate teaching assistants; course development teaching techniques, university policies and procedures. S, F grading.

591 Seminar in Interdisciplinary Studies 1 May be repeated for credit. Contemporary issues in interdisciplinary education and research. Open to all interested students.

800 Doctoral Research, Dissertation, and/or Examination 3 Variable credit. For Interdisciplinary PhD only. S, F grading.

Department of Kinesiology and Leisure Studies


Degrees

The Department of Kinesiology and Leisure Studies offers two undergraduate degrees: the Bachelor of Science in Kinesiology and the Bachelor of Arts in Recreation Administration and Leisure Studies. These degrees offer opportunities for studying biological, psychological, social mechanisms contributing to human development as it relates to movement and leisure studies/services.

Degree Program Requirements

Departmental Undergraduate Degrees

All letter-graded courses specifically required for each degree program must be taken for letter grade (i.e., not pass, fail). This applies to all students in the Bachelor of Science in Kinesiology and Bachelor of Arts in Recreation Administration and Leisure Studies.

BACHELOR OF SCIENCE IN KINESIOLOGY

The three kinesiology majors (athletic training, exercise science, and kinesiology) share core kinesiology and health courses. The kinesiology core is composed of a broad spectrum of courses designed to expose students to a variety of experiences, concepts, and philosophies. A grade of C or better must be obtained in all core courses. In addition, each major has a specialized curriculum designed to meet the requirements of the appropriate professional experience in which the student is interested.

Professional Core for the Bachelor of Science in Kinesiology

GER Courses.

In fulfilling the General Education Requirements for graduation, students must include Bio S 103; FSHN 130 or 233; Psych 105, SpCom 102.

Kinesiology Core Courses required for Athletic Training, Exercise Science, and Kinesiology


ATHLETIC TRAINING DEGREE PROGRAM (120 HOURS)

Accredited by the Commission on Accreditation of Allied Health Education Programs, the athletic training curriculum is designed to provide students with the necessary academic and clinical competency required to be certified by the National Athletic Trainers’ Association. All students majoring in athletic training will complete the kinesiology core, the athletic training major course work, and 1200 hours of clinical internship experience.

Because of curriculum accreditation regulations for student/faculty ratio, the program admits a limited number of students in the clinical internship. Application into the clinical internship occurs in the second semester of the freshman year. Academic requirements for this application process include but are not limited to 1.) completion of H Ed 363, Kin 262, 266, and 2.) a minimum g.p.a. of 2.8. Students are advised to consult with athletic training advisors early in their academic careers for specific application procedures.

Internship experiences combine the theory and management of sport-related injury/illness under the direct supervision of certified athletic trainers. Twelve hundred hands-on clinical hours are arranged over five semesters within collegiate sport medicine centers. Students are expected to maintain high academic standards and clinical competence to remain a part of the athletic training student clinical staff. Specific policies and procedures governing the clinical experience are available through athletic training advisors.

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>H Ed 101 [W] (GER)</td>
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</tr>
<tr>
<td>Kin 199</td>
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<tr>
<td>Kin 262</td>
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</tr>
<tr>
<td>Kin 364</td>
<td>3</td>
</tr>
<tr>
<td>PEACT 112</td>
<td>1</td>
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<tr>
<td>Psych 105 [S] (GER)</td>
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Second Semester

<table>
<thead>
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<tbody>
<tr>
<td>Ath T 266</td>
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<tr>
<td>Bio S 102 [B] or 103 [B] (GER)</td>
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<tr>
<td>H Ed 363</td>
<td>3</td>
</tr>
<tr>
<td>Phar S 217</td>
<td>3</td>
</tr>
<tr>
<td>SpCom 102 [C] (GER)</td>
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Sophomore Year

First Semester

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<th>Hours</th>
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<tbody>
<tr>
<td>Ath T 491</td>
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</tr>
<tr>
<td>Chem 101 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>FSHN 130 [B] or 233</td>
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<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>H Ed 361</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Ath T 311</td>
<td>3</td>
</tr>
<tr>
<td>Ath T 400 Series</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Kin 362</td>
<td>3</td>
</tr>
<tr>
<td>Zool 251</td>
<td>4</td>
</tr>
</tbody>
</table>
EXERCISE SCIENCE DEGREE PROGRAM (124 HOURS)

WSU graduates with a degree in exercise science are prepared for employment within the physical fitness industry to practice as exercise specialists either in private health clubs, fitness centers, corporate fitness programs, cardiac rehabilitation programs, or for enrollment in graduate school to pursue advanced study in physiology of exercise.

KINESIOLOGY DEGREE PROGRAM (120 HOURS)

The kinesiology curriculum is designed to provide students with the education basis for successfully pursuing a professional career in movement-related fields. Students must demonstrate proficiency in four of five activity areas: aquatics, individual/dual sports, team sports, dance and gymnastics-related. Proficiency may be demonstrated by testing or taking a comparable PEACT class.

ADMINISTRATION AND LEISURE STUDIES

A National Recreation and Parks Association accredited degree program, the recreation administration and leisure studies curriculum is designed to provide a broad-based professional preparation to students entering the recreation and leisure service profession. All students majoring in RLS must complete a core program of general education and professional recreation administration and leisure studies requirements. Additionally, each student will design an area of concentration based on the student’s professional goals.

Theory and practice are combined to prepare the student for employment in recreation administration and leisure services. A total of 1000 hours of documented practical experience is required of all RLS majors prior to their enrollment in RLS 491, Internship. A minimum of 180 hours of the 1000 hours are completed through credited practica. The remaining 820 hours may be accumulated through a variety of approved practical experiences. Field
experiences may be paid or voluntary. No student will be allowed to begin the internship experience if that student’s cumulative g.p.a. is less than the current grade point standard at the completion of that student’s course of study.

At least 40 of the total hours required for the Bachelor of Arts degree in Recreation Administration and Leisure Studies must be in 300-400-level courses.

To be eligible to certify as a recreation administration and leisure studies major, a student must have earned at least 30 semester hours of credit on graded course work and meet the current standards of 1.) cumulative g.p.a. of 2.0 and 2.) cumulative g.p.a. based on at least 15 hours of RLS core courses. Full details are available from the department. If the cumulative g.p.a. of a certified major in RLS falls below the current standard any time after certification and the student becomes deficient under Academic Regulations 37, 38, or 39, that student will be decertified. Certification will be reinstated when the student’s cumulative g.p.a. returns to the current standard and criteria established for recertification are met.

A grade of C or better must be obtained in all RLS professional core classes.

A major in RLS may secure a second degree by meeting the requirements of the subject-matter area and presenting not less than the 150 semester hours.

Degrees: The department offers courses of study leading to a Bachelor of Arts in Recreation Administration and Leisure Studies. A Master of Arts degree is available for those wishing to pursue advanced degree work in Recreation Administration and Leisure Studies.

RECREATION ADMINISTRATION AND LEISURE STUDIES DEGREE PROGRAM (132 HOURS)

Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Psych 105 [S] (GER)</td>
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<tr>
<td>RLS 275</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>RLS 285</td>
<td>3</td>
</tr>
<tr>
<td>Soc 101 [S] or 102 [S] (GER)</td>
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<tr>
<td>SpCom 102 [C] (GER)</td>
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<tr>
<td>Tier I Science [Q] (GER)</td>
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Sophomore Year

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<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>ES/RP 101 [B] (GER)</td>
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<tr>
<td>H Ed 363</td>
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<tr>
<td>H D 101 [S] (GER) or Psych 361</td>
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<tr>
<td>RLS 383 or 388</td>
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<tr>
<th>Second Semester</th>
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<tr>
<td>Area of Concentration</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<td>Cpt S Elective</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>RLS 341 or 321</td>
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Junior Year

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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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Enavl 201 [W] or 402 [W] (GER) | 3 |
RLS (Practicum) | 1 |
RLS 388 or 383 | 3 |
Complete Writing Portfolio | |

Second Semester

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<td>RLS 321 or 341</td>
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<td>RLS 375</td>
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Senior Year

First Semester

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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>RLS 421 [M]</td>
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<tr>
<td>RLS 435</td>
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<td>RLS 475</td>
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Second Semester

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<th>Area of Concentration</th>
<th>Hours</th>
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<tr>
<td>RLS (Practicum)</td>
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<td>RLS 481</td>
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<td>RLS 482</td>
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<tr>
<td>RLS 488</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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Kin 491 Internship | 10-12 |

Preparation for Graduate Study

Admission to graduate study requires 1.) a bachelor’s degree in one of the fields represented in the department or an appropriate related field and 2.) evidence of ability to complete advanced academic work. Applicants without an appropriate undergraduate degree will be required to complete supplemental course work. Current graduate school admissions requirements govern departments admission decisions.

Description of Courses

PEACT These courses are open to all students. PEACT courses numbered 100 through 174 are for beginners. Those numbered 177 and above are for intermediate or advanced students.

Credit. PEACT activity course credit is granted on the basis of 1 credit for two one-hour classes per week. PEACT courses may not be repeated for credit with the exception of PEACT 200 Special Topics (1 credit hour, repeatable to a maximum of 4 hours).

Courses are graded A, S, or F, except as noted.

Physical Education Activity

PEACT

| 101 Beginning Conditioning S, F grading. |
| 102 Beginning Conditioning ROTC |
| 105 Beginning Wrestling |
| 106 Self Defense |
| 107 Beginning Judo |
| 108 Karate |
| 112 Weight Training S, F grading. |
| 114 Beginning Gym Tumbling |
| 116 Gymnastics |
| 118 Adapted Physical Education |
| 119 Aerobic Dance S, F grading. |
| 120 American Social Dance Men |
| 121 American Social Dance Women |
| 122 Beginning Ballet |
| 124 Tap Dancing |
| 126 Beginning Mod Dance |
| 127 Beginning Jazz Dance |
| 128 Beginning Swimming |
| 130 Diving |
| 131 Scuba Diving |
| 132 Conditioning Swimming S, F grading. |
| 133 Water Aerobics S, F grading. |
| 134 Conditioning Skiing S, F grading. |
| 135 Aqua Fitness |
| 137 Boating Safety Instruction |
| 139 Rowing S, F grading. |
| 140 Jogging S, F grading. |
| 141 Beginning Golf |
| 143 Beginning Bowling |
| 145 Beginning Fencing Men |
| 146 Beginning Fencing Women |
| 147 Beginning Rollerskating and Rollerblading |
| 148 Beginning Badminton |
| 150 Beginning Tennis |
| 152 Pocket Billiards |
| 153 Ultimate Frisbee |
| 154 Beginning Racquetball |
| 158 Beginning Volleyball |
| 164 Beginning Soccer |
| 174 Beginning Skiing S, F grading. |
| 177 Intermediate Racquetball |
| 181 Beginning Roller Hockey |
| 200 Special Topics |
| 201 Intermediate Conditioning ROTC |

1) MATH 205 [N] is preferred.
2) 18-20 electives from an area of concentration chosen in consultation with the advisor. Must be determined prior to the beginning of the first semester of the student’s junior year or in case of a transfer student, the second semester of the junior year. An area of concentration may correspond to a designated minor as listed in the WSU Catalog or may be constructed from courses selected to give the student background for a chosen segment of the leisure services industry.
3) Engl 402 strongly recommended.
4) Practicum credits from: 390, 391, 392, 393, 395.
5) Internship taken after all coursework is completed.

Departmental Minors

Health and Wellness

FSHN 130, H Ed 361, 363, PEACT (2 hours), Kin 364, Phar 217; 3 hours from H D 203, 305, or Psych 363; one of: ES/ RP 101, Psych 220, or 230. Total: 21 or 22 hours

Recreation Administration and Leisure Studies

RLS 275, 285, 375; select 6 hours from: RLS 321, 341, 383, 388; select 6 hours from RLS 421, 435, 475, 481. Practicum credit will strengthen this minor. Total: 21 hours

Sport Management

See Department of Educational Leadership and Counseling Psychology.

Transfer Students

Transfer students should note the sequence of professional requirements in specialized areas. Sequences are designed to provide progression from one course to another. For information regarding acceptability of professional courses taken at other institutions, prospective students should communicate with the departmental chair.

Department of Kinesiology and Leisure Studies
208 Intermediate Karate
220 Advanced Social Dance Men
221 Advanced Social Dance Women
222 Intermediate Ballet
224 Intermediate Tap Dance
227 Intermediate Jazz Dance
228 Intermediate Swimming
231 Advanced Scuba Diving
234 Emergency Water Safety
235 Lifeguarding
236 Lifesaving Recertification
241 Intermediate Golf
242 Advanced Golf
243 Intermediate Bowling
245 Intermediate Fencing Men
246 Intermediate Fencing Women
247 Advanced Racquetball
250 Intermediate Tennis
251 Advanced Tennis
253 Advanced Ultimate Frisbee
258 Intermediate Volleyball
264 Advanced Volleyball
265 Advanced Soccer
266 Advanced Field Hockey
274 Intermediate Skiing S, F grading.
275 Advanced Skiing S, F grading.
281 Intermediate Roller Hockey
282 Competitive Roller Hockey

Athletic Training
Ath T 266 Care and Prevention of Athletic Injuries 3 (2-3) Same as Kin 266.
305 Nutrition Related to Fitness and Sport 2 Prereq FSHN 130 or 233. Identification of energy, macro/micro nutrient and fluid requirements during exercise; fitness of dietary regimens and ergogenic aids for pre and post competition, weight maintenance, and wellness. Cooperative course taught by UI (H&S 349), open to WSU students.
311 Strength Training 3 Same as Kin 311.
349 Advanced Athletic Injuries 3 (2-3) Prereq Ath T 266. Etiologic symptoms of sports-related injuries; diagnostic emphasis given to specific injuries of the extremities. Cooperative course taught by UI (H&S 349), open to WSU students.
465 Medical Aspects of Athletic Injuries 1 Prereq Ath T 266. Role and function of various medical and paramedical specialists in the treatment of sport-related injuries/illnesses. S, F grading. Cooperative course taught by WSU, open to UI students (H&S 465).
466 Athletic Training Evaluation 3 Prereq Ath T 266. Advanced injury evaluation theory and techniques in athletic training. Cooperative course taught by WSU, open to UI students (H&S 466).
467 [M] Athletic Training Rehabilitation 3 Prereq Ath T 266. Advanced injury rehabilitation theory and techniques in athletic training. Cooperative course taught by WSU, open to UI students (H&S 467).
468 Athletic Training Modalities 3 Prereq Ath T 266. Advanced theory and techniques of modality use in athletic training. Cooperative course taught by WSU, open to UI students (H&S 468).
469 [M] Athletic Training Organization and Administration 3 Prereq Ath T 266. The organization and administration of athletic training programs. Cooperative course taught by WSU, open to UI students (H&S 469).
490 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. Prereq Ath T 266, Kin 262. S, F grading.
491 (490) Athletic Training Clinical Internship I 3 (0-9) By interview only. Beginning techniques in management of sport injury/illness under supervision of a certified athletic trainer. S, F grading.
492 (491) Athletic Training Clinical Internship II 3 (0-9) By interview only. Intermediate techniques in management of sport injury/illness under supervision of a certified athletic trainer. S, F grading.
493 (492) Athletic Training Clinical Internship III 3 (0-9) By interview only. Advanced techniques in management of sport injury/illness under supervision of a certified athletic trainer. S, F grading.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Health Education
H Ed 361 Health and Wellness 3 Knowledge of the multi-dimensional aspects of wellness and concepts necessary for a positive lifestyle through self-assessment.
363 First Aid 2 (1-3) First aid; CPR; accident prevention; American Red Cross certification awarded to those who qualify.
463 Methods of First Aid Instruction 2 (1-3) Prereq Red Cross First Aid and CPR certificate. Red Cross Standard First Aid and CPR instructor training; certification to those who qualify.
490 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. Same as Kin 490, S, F grading.
496 Special Topics V 1-3 May be repeated for credit; cumulative maximum 9 hours. Special topics in health.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Kinesiology
Kin 196 Introductory Topics 1 May be repeated for credit; cumulative maximum 4 hours. Physical education, leisure, recreation, dance, health sports.
262 Human Anatomy 3 (2-3) Human skeletal structure and articulations; skeletal musculature; the nervous, respiratory, and circulatory system. Cooperative course taught by WSU, open to UI students (PE 261).
266 Care and Prevention of Athletic Injuries 3 (2-3) Prereq Kin 262 or c//. Administration of school sports health care programs; prevention, treatment, and rehabilitation of sports injuries.
289 Introduction to Youth Sports 2 Same as RLS 289.
296 Applied Computer Technology 1 (0-3) Application of scholarly concepts with the help of multimedia technology.

311 Strength Training 3 Prereq Kin 262, 364, PEACT 112. Basic information and guidelines for the enhancement of athletic performance, injury prevention, rehabilitation and general fitness.
314 Philosophy of Human Movement 3 The philosophical dimensions of physical education, sport, and dance.
317 Practicum and Seminar 3 (1-6) 10 hours in the subject-matter major. S, F grading.
362 Biomechanics 3 Prereq Kin 262 or Zool 315. Anatomical and mechanical influences on human movement.
364 Fitness 3 (2-3) Physiological, mechanical and health-related basis of fitness practices.
384 Lifeguard Instruction 1 (0-3) Prereq ARC lifeguard training; CPR; first aid. Methods, materials, and resources; American Red Cross lifeguard instructor certificates awarded to those who qualify.
385 Methods of Water Safety and Swimming Instruction 3 (2-3) Prereq ARC Lifeguard Training or Emergency Water Safety certificates; ARC Swimmer Certificate, or equivalent ability. Methods, materials, and resources; American Red Cross certificates awarded to those who qualify.
390 Practicum in Coaching 1 V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.
392 Practicum in Physical Education V 1 (0-3) to 4 (0-12) May be repeated for credit, cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.
393 Practicum in Special Populations V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.
415 Assessment 3 (2-3) Prereq senior in KLS. Program evaluation of human techniques for curriculum pertaining to human movement.
461 [M] Motor Skill Acquisition 3 Motor learning and motor control areas; neural mechanisms, practice, feedback, retention, and transfer application of theoretical concepts.
462 Physiology of Exercise 3 (2-3) Prereq Kin 262 or Zool 315; Zool 251. Basic physiological responses of the human organism to the stresses of exercise and training.
470 Exercise Science Laboratory Techniques 2 (0-6) Prereq Kin 463. Routine exercise physiology field and laboratory techniques.
475 Women and Sport 3 Understanding of the current status of women’s sports participation in the U.S. and of the woman participant herself.
476 Exercise Testing and Prescription 3 (2-3) Prereq Kin 463. Principles of exercise testing and prescription based on current practices in physical education, physiology and rehabilitation. Credit not granted for both Kin 476 and 568.

\(^1\)Combined maximum for Kin and RLS 300-level practicum courses 8 hours.
481 Analysis of Human Movement 3 (2-3) Development of knowledge and skills which assist the physical education teacher in planning for and responding to student skill learning.

483 Management and Methods of Teaching Physical Education 3 (2-3) Prereq Kin 481 or c/o. Management and control, teaching styles, methods, lesson design, discipline, with application in teaching labs. Cooperative course taught by WSU, open to UI students (PE 320, 321).

484 Principles of Movement for Individuals with Disabilities 3 Knowledge, understanding, and skills for teaching movement activities to individuals with disabilities.

490 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

491 Internship V 8-12 Supervised practicum in agency or business. S, F grading.

496 Special Topics 1 May be repeated for credit; cumulative maximum 4 hours. Physical education, leisure, recreation, dance, health sports.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Trends and Issues in Kinesiology 3 May be repeated for credit; cumulative maximum 6 hours. Exploration of trends and issues in kinesiology.

551 Assessment and Evaluation of Motor Dysfunction 3 Principles of assessment/evaluation of motor dysfunction; tools and techniques; administration, interpretation, and translation into program plans. Cooperative course taught by WSU, open to UI students (PEP 551n).

552 Neurological Impairment and Motor Behavior 3 Neurophysiological components of normal and abnormal motor behavior as a result of neurological impairments/dysfunction in children through the aged. Cooperative course taught by WSU, open to UI students (PEP 552).

553 Programming in Adapted Physical Activity 3 Intensive experiences in planning and implementing physical activity programs to include disabled individuals in urban, rural, integrated and segregated settings. Cooperative course taught by WSU, open to UI students (PEP 553).

554 Sport and Individuals with Disabilities 3 Issues and opportunities in sport for individuals with disabilities. Cooperative course taught by WSU, open to UI students (PEP 554).

560 Epidemiology, Exercise and Health 3 Prereq graduate standing. Epidemiological approach to the study of health benefits/risks of exercise in youth, adults, women and ethnic groups.

562 Pediatric Exercise Physiology 3 Rec Kin 463. Influences of physical development on physiological responses of children and adolescents to exercise and training.

563 Exercise and Immune Response 3 Rec Kin 463. Influence of physical exercise on immune response and consequent impact on host susceptibility to disease and infection.

564 Mechanical Analysis of Motor Activity 3 Prereq Kin 362. Fundamental laws of mechanics applied to motor activities. Cooperative course taught by WSU, open to UI students (PE 564).

565 Advanced Physiology of Exercise 1 3 Rec Kin 463. Bioenergetic, striated muscle metabolic, and neuroendocrine responses to exercise and training.

566 Biomechanics 3 Prereq Kin 564. Biological and mechanical aspects of human movement. Cooperative course taught by WSU, open to UI students (PE 566).

567 Advanced Physiology of Exercise 3 Rec Kin 463. Pulmonary, circulatory, thermoregulatory, fluid balance and physiological system integration responses to exercise and training.

568 Fitness Assessment and Prescription 3 Prereq Kin 463. Development of skills in testing analysis, and prescription for health-related fitness. Credit not granted for both Kin 476 and 568. Cooperative course taught by UI (PE 593), open to WSU students.

573 Philosophical Perspectives of Sport and Physical Activity 3 Ontological, ethical, aesthetic views of physical activity.

574 Social and Cultural Issues of Physical Activity and Sport 3 Exploration, analysis and understanding of human movement in the context of the individual, cultural, and physical environments.

578 Sports in Society 3 The social significance of sports; sociology of sport research.

579 Psychology and Physical Activity 3 Current research findings in psychology pertinent to the teaching and coaching of physical activities.


582 Observation and Analysis of Teaching Physical Activity 3 (2-3) Systematic approach to observation/analysis of teaching physical activity; evaluation of instructional process. Cooperative course taught jointly by WSU and UI (PEP 522).

583 Teaching Strategies in Physical Activity 3 Research materials and methods related to effective teaching in physical education.

585 Curriculum Development in K-12 Physical Education 3 Principles of curriculum construction and the process of curricular development. Cooperative course taught jointly by WSU and UI (PE 544).


589 Research Techniques 2 (1-3) or 3 (2-3) Application and use of research techniques and tools in physiology of exercise.

590 Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Internship in educational, industrial, municipal or private sports or recreational setting; direct participation in tasks, research and reporting activities. S, F grading.

591 Motor Learning 3 Learning theory, learning models, and experimental evidence related to learning of perceptual-motor skills.

592 Perceptual-Motor Development 3 Physical growth and perceptual-motor development.

594 Educational Internship V 2-9 May be repeated for credit; cumulative maximum 9 hours. Internship in educational setting; direct participation in tasks, research, planning, activity controlling and reporting. S, F grading.

596 Seminar 1 or 2 May be repeated for credit.

597 College Teaching: Physical Education 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. By interview only. Supervised experience in college teaching. S, F grading.

598 Methods of Research 3 Application of the scientific approach to research in physical education, sport and leisure.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Recreation and Leisure Studies

RLS 110 Recreation for Special Populations 3 History, etiology, characteristics, services, resources, professional competencies and opportunities; recreation programs. Credit not granted for both RLS 110 and 383. Cooperative course taught by UI (Rec 110), open to WSU students.

221 Outdoor Recreation 2 (1-3) Analysis of activities, equipment, safety, environmental impact, and skills basic to outdoor recreation.

229 Nature and the American Experience V 1-6 May be repeated for credit; cumulative maximum 6 hours. Study of nature writings and the integration of these writings with natural setting observations.

230 Principles of Therapeutic Recreation 3 Prereq RLS 110. Philosophy, design, and development of recreation programs for persons with disabling conditions; theory and rationale of therapeutic recreation. Cooperative course taught by UI (Rec 230), open to WSU students.

275 Leisure in Society 3 The leisure movement in society; history, philosophies, trends; socioeconomic values; professional responsibilities within governmental and nongovernmental agencies.

284 Recreation Activities 2 (1-3) Development of theories, knowledge, and skills in a variety of recreation activities.

285 Recreation Leadership 3 (2-3) Theories and techniques of leadership.

288 American Outdoor Recreation Areas V 1-6 May be repeated for credit; cumulative maximum 6 hours. Field study and readings in outdoor recreation administrative, managerial, and planning practices.

289 Introduction to Youth Sports 2 Coaching philosophy; sport psychology, conditioning, and pedagogy; physiology; legal aspects; recreational youth sports programs.

321 Social Psychology of Leisure and Recreation 3 Prereq Psych 105, Soc 101 or 102; RLS 275, 285; certified major in RLS. Presentation, interpretation and discussion of research and literature related to the social psychological aspects of leisure and recreation.

330 Therapeutic Recreation Programs for People with Disabilities 3 Prereq RLS 110. Prevalent disabling conditions (including etiology, symptomatology, and characteristics), and their implications for programming intervention in clinical settings. Field trip required. Cooperative course taught by UI (Rec 330), open to WSU students.
341 Commercial Recreation 3 Prereq RLS 275, 285. Identification, organization, and functions of the various types of commercial recreation businesses; marketing recreation and leisure services.

342 Therapeutic Recreation in Psychiatric Settings 3 Prereq 10 hours outside experience. Therapeutic recreation delivery in psychiatric settings, including long-term settings such as state hospitals, acute inpatient psychiatric settings, and community mental health centers; major psychiatric disorders, how to work as a part of an interdisciplinary team, and the viable role of recreation in the treatment process. Cooperative course taught by UI (Rec 342), open to WSU students.

344 Assessment and Evaluation in Therapeutic Recreation 2 Standardized assessment and evaluation tools currently used in therapeutic recreation services; integration of assessment practices into therapeutic recreation programs and how to choose standardized tools appropriate to both client and professional setting; practical assessment situations. Cooperative course taught by UI (Rec 341), open to WSU students.

365 Recreation for the Elderly 3 Recreation programming for the elderly based on aging process, cultural influences, and psychological and social aspects. Cooperative course taught by UI (Rec 365), open to WSU students.

371 Wildland Recreation 3 Same as NATR 371.

375 Recreation Programming 3 (2-3) Prereq RLS 285; certified major in RLS. Current principles and practices in recreation programming.

383 Therapeutic Recreation Services 3 Prereq RLS 285. Foundations for therapeutic recreation services, recreation services for special populations, people with disabilities and older adults. Credit not granted for both RLS 110 and 383.


390 Practicum in Commercial Recreation V 1 (0-3) to 4 (0-12) May be repeated for credit, cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

391 Practicum in Municipal/Agency V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

392 Practicum in Parks/Facilities V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

393 Practicum in Therapeutic Recreation V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

395 Practicum in Recreation/Leisure Research V 1 (0-3) to 4 (0-12) By interview only. May be repeated for credit; cumulative maximum 8 hours. Supervised practicum.

421 [M] Assessment in Recreation and Leisure 3 Prereq RLS 321 or approved stat course; Rec Math 205. Designing, implementing, and interpreting the information generated by instruments which evaluate recreation and leisure needs, leisure service programs, and personnel.

430 Problems in Therapeutic Recreation 3 Problems encountered in the delivery of therapeutic recreation services to clients with special needs. Cooperative course taught by UI (Rec 430), open to WSU students.
Program in Materials Science


Materials science includes the principles and practice of designing, synthesizing, characterizing, preparing, and fabricating useful materials. The Materials Science Program accepts qualified bachelor’s and master’s graduates in the sciences and engineering who now wish to pursue graduate research for a PhD in the area where the disciplines overlap. A broad range of topics is included under this program and it is usual for students to select one of the following tracks within materials science.

The CHEMICAL PHYSICS track emphasizes condensed matter and atomic and molecular physics and chemistry, including application of spectroscopy to synthesis, irradiation effects at surfaces, thin film phenomena, and layered and atomic structures. The MATERIALS ENGINEERING track emphasizes the methodology and principles relating the structure of metals, polymers, and ceramics to their mechanical, physical, and chemical properties and their utilization. The MATERIALS PHYSICS AND CHEMISTRY track emphasizes applications of condensed matter, atomic and molecular physics and chemistry to improve understanding of the processing and characterization of materials. Students who plan a career in materials science are expected to obtain a strong foundation in mathematics, physics, and chemistry. Requirements for the Materials Science PhD include a minimum of 72 credit hours of which at least 36 hours are graded course work. The common ground for all participants in materials science is covered by the core of courses (16-18 hours) required of all students: thermodynamics, statistical mechanics, solid state physics, phase transformations, microscopy and spectroscopy, and a survey of current topics in materials science. All students must attend the materials science seminar program. Additional required courses (23 hours or more) vary with the chosen track and the research programs of individual students. In the chemical physics track students are required to study quantum mechanics, atomic and molecular physics, atomic and molecular phenomena, and group theory which should be supplemented with a selection from advanced chemistry, physics and materials engineering courses. In the materials engineering track the required courses are mechanized properties and applied mathematics to be supplemented with selected materials science engineering and related courses. In the materials physics and chemistry track students must take quantum mechanics which should be supplemented by advanced courses in chemistry, engineering, and physics. An original research dissertation (Mat S 800) is required. After admission to candidacy for the degree, students select a research supervisor from the materials science faculty. A broad spectrum of contemporary research areas is available.

Description of Courses

Materials Science

Mat S 503 Current Topics in Materials Science V 1-3 May be repeated for credit. Recent advances and current research at the forefront of materials science.

513 Crystal Plasticity 3 Same as MSE 513.

516 Phase Transformations 3 Same as MSE 516.

538 Special Topics V 1-3 May be repeated for credit. Selected topics of current interest in advanced materials science.

571 Microscopic Analysis of Solid Surfaces 3 Modern spectroscopic methods for microscopic analysis of solid surfaces; emphasizes electron, ion, laser, and x-ray techniques.

590 Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Same as MSE 520.

600 Special Projects or Independent Study Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Pure and Applied Mathematics


The Department of Pure and Applied Mathematics provides undergraduate instruction and training in all major fields of mathematics. The numerous service courses taught by the department reflect the growing importance of mathematics in an increasing number of other disciplines.

Undergraduate training for mathematics majors is provided at WSU in the following seven options: Actuarial Science, Applied Statistics, Computational Mathematics, Mathematical Modeling, Operations Research, Secondary Mathematics Teaching, and Theoretical Mathematics. The first six options prepare students for careers related to the respective fields, while the option in Theoretical Mathematics is the traditional curriculum for Mathematics majors. Talented undergraduate majors in mathematics are given individual and small group instruction outside of class, sometimes resulting in research publications.

The mathematics major also prepares students for graduate study in such fields as business, economics, management science and computer science, as well as mathematics and statistics.

Graduate study and specialization are offered by the department in both classical and modern areas. The Doctor of Arts and the PhD with Teaching Emphasis programs are specially designed for future college teachers, while the several options in applied mathematics, which include an internship experience, provide graduate preparation for mathematical careers in business and industry.

The Mathematics Department runs the Newton Microcomputer Laboratory where a variety of computers is available for students to do assignments in both basic and advanced courses. In addition, research is conducted using a wide variety of machines available to faculty and students.

Astronomy courses at both the undergraduate and graduate levels are administered by the department. Instruction in astronomy is enhanced by the use of a 12-inch refractor at the Jewett Observatory and a Spitz planetarium. Opportunities are available for students to collaborate with faculty to do research projects with the 3.5 m Apache Point Telescope which can be operated remotely from the WSU campus.

Entering freshmen are required to take the mathematics placement test for enrollment in basic courses.

The department offers courses of study leading to the degrees of Bachelor in Science in Mathematics, Master of Science in Mathematics (with an Applied Mathematics option), Doctor of Arts, Doctor of Philosophy, and Doctor of Philosophy with Teaching Emphasis.

Degree Program Requirements

There is a core of requirements common to all of the mathematical sciences options. Students are required to take the core courses and to complete one of the degree programs listed below.

A major in mathematics requires Math 171, 172, 220, 273, 315; 360 or 443; 398, 401, 402, 420; Phys 201, Cpt S 203, Engl 402 (students whose native language is not English may substitute Engl 403 for 402). Hist 381 and 382 are strongly recommended for partial satisfaction of the GER requirements.

FIRST SEMESTER REQUIREMENTS

The first semester requirements are common to all mathematics degree programs:

Freshman Year

First Semester Hours

Degree Program Course, if necessary1 2 or 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 171 [N] (GER) 4
Science Elective2 1
Tier I Science [Q] (GER)3 3

1 Students in Actuarial Science take Econ 101 [S] (GER); students in Computation Mathematics take Cpt S 203.
2 Students may substitute one four-credit Tier I Science for both the three-credit Tier I Science and the one-credit Science Elective.

AUCTURIAL DEGREE PROGRAM (127 HOURS)

Freshman Year

Second Semester Hours

Arts & Humanities [H,G] (GER) 3
Cpt S 203 3
Econ 102 [S] (GER) 3
GenEd 111 [A] (GER) 3
Math 172 3

174
### Sophomore Year

**First Semester**
- **Hours**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Foreign Language, if necessary, or Elective 4
- Math 220 2
- Math 273 2
- Phys 201 [P] (GER) 4

**Second Semester**
- **Hours**
- Biological Sciences [B] (GER) 4
- Foreign Language, if necessary, or Elective 4
- Intercultural [I,G,K] (GER) 3
- Math 315 3
- Math 360 3

**Junior Year**

**First Semester**
- **Hours**
- Engl 402 [W] (GER) 3
- Math 364 3
- Math 401 [M] 3
- Math 443 3
- Tier III Capstone (GER) 3

**Second Semester**
- **Hours**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Cpt S 250 2
- Math 398 1
- Math 402 [M] 3
- Math 442 3
- Math 444 3

**Senior Year**

**First Semester**
- **Hours**
- Hist 381 [S] (GER) 1 3
- Math 420 [M] 3
- Math 448 3
- Complete Writing Portfolio

**Second Semester**
- **Hours**
- Hist 382 [S] (GER) 1 3
- Math 360 or 443 3
- Math 421 [M] 3
- Electives 6

**Strongly recommended. If not taken, another Social Science [S,K] or Arts & Humanities [H,G] must be taken.**

### MATHEMATICAL MODELING AND OPERATIONS RESEARCH DEGREE PROGRAMS (122 HOURS)

**Freshman Year**

**Second Semester**
- **Hours**
- Cpt S 203 2
- Foreign Language, if necessary, or Elective 4
- GenEd 111 [A] (GER) 3
- Math 172 3
- Math 220 2

**Sophomore Year**

**First Semester**
- **Hours**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Foreign Language, if necessary, or Elective 4
- Math 220 2

**Second Semester**
- **Hours**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Foreign Language, if necessary, or Elective 4
- Math 315 3
- Math 360 3
- Elective 3

**Junior Year**

**First Semester**
- **Hours**
- Engl 402 [W] (GER) 3
- Foreign Language, if necessary, or Elective 4
- Hist 381 [S] (GER) 3
- Math 420 [M] 3
- Math 448 3

**Second Semester**
- **Hours**
- Complete Writing Portfolio

**Senior Year**

**First Semester**
- **Hours**
- Math 401 [M] 3
- Two from: Math 417, 418, 440, 464 6
- Electives 6

**Second Semester**
- **Hours**
- Math 402 [M] 3
- Tier III Capstone (GER) 3
- Electives 9

**Strongly recommended. If not taken, another Social Science [S,K] or Arts & Humanities [H,G] must be taken.**

### COMPUTATIONAL DEGREE PROGRAM (122 HOURS)

**Freshman Year**

**Second Semester**
- **Hours**
- Cpt S 203 2
- Foreign Language, if necessary, or Elective 4
- GenEd 111 [A] (GER) 3
- Math 172 3
- Math 220 2

**Sophomore Year**

**First Semester**
- **Hours**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Foreign Language, if necessary, or Elective 4
- Math 220 2

**Second Semester**
- **Hours**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Foreign Language, if necessary, or Elective 4
- Math 315 3
- Math 360 3
- Elective 3

**Junior Year**

**First Semester**
- **Hours**
- Engl 402 [W] (GER) 3
- Math 360 or 443 3
- Math 401 [M] 3
- Electives 8

**Second Semester**
- **Hours**
- Complete Writing Portfolio
SECONDARY MATHEMATICS TEACHING DEGREE PROGRAM (135 HOURS)

Freshman Year

Second Semester  Hours  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
Degree Program Course 3 or 6  
Math 402 [M] 3  
Electives 3-7  

Senior Year

First Semester  Hours  
Degree Program Course 6  
Hist 381 [S] (GER) 3  
Math 420 3  
Electives 3  

Second Semester  Hours  
Degree Program Course 3  
Hist 382 [S] (GER) 3  
Math 421 3  
Math 448 3  
Tier III Capstone (GER) 3  
Electives 3-6  

Sophomore Year

First Semester  Hours  
Cpt S 153 2  
GenEd 111 [A] (GER) 3  
Math 172 3  
Math 220 2  
SpCom 102 [C,W] (GER) 3  

Sophomore Year

First Semester  Hours  
Arts & Humanities [H,G] (GER) 3  
Engl 402 [W] (GER) 3  
Math 273 2  
Phys 201 [P] (GER) 4  
Psych 105 [S] (GER) 3  
T & L 300 1  

Second Semester  Hours  
Biological Sciences [B] (GER) 4  
Intercultural [I,G,K] 3  
Math 315 3  
Math 360 3  
T & L 301 3  

Junior Year

First Semester  Hours  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
Math 375 or 415 3  
Math 401 [M] 3  
Math 421 [M] 3  
Math 441 3  
Complete Writing Portfolio

Second Semester  Hours  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
Math 303 [M] 3  
Math 398 1  
T & L 317/318 3  
T & L 328 2  
T & L 450/451 2  

Senior Year

First Semester  Hours  
300-400-level Elective 3  
Ed Psych 402 2  
Hist 381 [S] (GER) 3  
Math 330 3  
T & L 404 3  

Second Semester  Hours  
Hist 382 [S] (GER) 3  
Math 320 [M] or 421 [M] 3  
Tier III Capstone (GER) 3  
Electives 6  

Directed Teaching

T & L 415 16  

1 For Mathematical Modeling, take two courses from: Math 364, 417, 441, 464, Stat 442, or 530; for Operations Research, take Math 464.  
2 For Mathematical Modeling, take Math 415 and 440; for Operations Research, take two courses from: Math 417, 466, Stat 472 (primary recommendations), or Math 325, 448, 453, Stat 444.  
3 Strongly recommended. If not taken, another Social Science [S,K] or Arts & Humanities [H,G] must be taken.  
4 For Mathematical Modeling, take Math 448.

THEORETICAL MATHEMATICS DEGREE PROGRAM (122 HOURS)

Freshman Year

Second Semester  Hours  
Arts & Humanities [H,G] (GER) 3  
GenEd 111 [A] (GER) 3  
Math 172 [N] (GER) 3  
Math 220 2  
Phys 201 [P] (GER) 4  

Sophomore Year

First Semester  Hours  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
Biological Sciences [B] (GER) 4  
Cpt S 203 2  
Hist 381 [S] (GER) 3  
Math 273 2  
Math 398 1  

Second Semester  Hours  
Hist 382 [S] (GER) 3  
Intercultural [I,G,K] (GER) 3  
Math 315 3  
Math 360 or 443 3  
Math 420 3  

Junior Year

First Semester  Hours  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
Math 375 or 415 3  
Math 401 [M] 3  
Math 421 [M] 3  
Math 441 3  
Complete Writing Portfolio

Second Semester  Hours  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
Math 402 [W] (GER) 3  
Foreign Language, if necessary, or Elective 4  
Math 402 [M] 3  
Electives 6

Certification Requirements

1. Applications for certification are accepted at any time during fall and spring semesters. Decisions are made within ten working days of receipt of application. Application forms are available in the Mathematics Department office and at the Student Advising and Learning Center (SALC), Lighty 260.  
2. Applications are evaluated, and certification decided, by a faculty committee.  
3. Applicants must have an overall grade point average of at least 2.0.  
4. The mathematics core consists of Math 171, 172, 220. This core (or its equivalent for transfer students) must be completed before application.  
5. Students with at least a 2.5 grade point average in the mathematics core will be certified automatically. Those with less than a 2.0 g.p.a. in the mathematics core will normally not be certified. Others will be considered on a case-by-case basis.  
6. Appeals on certification decisions are considered by the department chairperson.  
7. Students who are denied certification may reapply after completing at least 12 more semester hours, whereupon decisions are based on grades in mathematics, science, and computer science courses; cumulative grade point average and grade patterns; and a personal interview.  
8. Certified students whose cumulative grade point average or grade point average in mathematics courses numbered 171 and above falls below 2.0 for two consecutive semesters, or who are academically deficient, are subject to decertification.  
9. Applications for recertification are handled in the same manner as certification applications for those previously denied.  
10. Women and minorities are encouraged to apply. Special consideration will be given to affirmative action candidates.

Mathematics Minor

A mathematics minor requires 18 hours, with at least 9 hours of 300-400-level credits (excluding Math 330, 351, 431, 497). The g.p.a. requirements for the major (see graduation requirements) also apply to the minor in mathematics. Courses required for either the major or minor may not be taken pass, fail.
Preparation for Graduate Study

As preparation for work toward an advanced degree in mathematics, a student should have completed the equivalent of the above schedule of studies. Adequate opportunities are provided for removing deficiencies through the taking of appropriate courses. Students who contemplate undertaking studies leading to a doctoral degree should contact the department for advice and assistance in the development of their plans.

Description of Courses

Mathematics

101 Intermediate Algebra 3 Prereq Math 101 or satisfactory math placement score. Fundamental algebraic operations and concepts.

107 Elementary Functions 4 Prereq Math 101 or satisfactory math placement score. Graphs, properties, and applications of polynomial, rational, exponential, logarithmic, and trigonometric functions.

140 [N] Mathematics for Life Scientists 4 Prereq Math 107 or satisfactory math placement score. Differential and integral calculus with emphasis on life science applications. Credit not normally granted for more than one of Math 140, 171, 202, 206.

171 [N] Calculus I 4 (3-3) Prereq Math 107, or satisfactory math placement score. Differential and integral calculus of one variable with associated analytic geometry. Credit not normally granted for more than one of Math 140, 171, 202, 206.

172 Calculus II 4 (3-3) Prereq Math 171. Techniques and applications of one-variable calculus; estimations; series, derivative of a vector function.

201 Introduction to Finite Mathematics for Business and Economics 3 Prereq Math 101 or satisfactory math placement score. Basic notions of logic, linear algebra, matrices and analytic geometry; applications to linear programming. Credit not normally granted for both Math 201 and 220.

202 [N] Introduction to Mathematical Analysis for Business and Economics 3 Prereq Math 107, 201, or satisfactory math placement score. Differential and integral calculus of the polynomial, exponential, and logarithmic functions. Credit not normally granted for more than one of Math 140, 171, 202, 206.

205 [N] Statistical Thinking 3 Prereq Math 101 or satisfactory math placement score. Scientific explanation; correlations and causality; presenting statistical evidence; graphical and numerical methods; chance and gambling; the bell-shaped distribution.

206 [N] Mathematical Analysis for Architects 3 Prereq Math 107, or satisfactory math placement score. Calculus of elementary functions; trigonometry; applications to architects. Credit not normally granted for more than one of Math 140, 171, 202, 206.

210 [N] Introduction to Mathematics 3 Prereq Math 101 or satisfactory math placement score. Nature and scope of modern mathematics, relationships to other disciplines. Credit does not apply toward graduation.

212 [N] Introduction to Statistical Methods 4 (3-3) Same as Stat 212.

216 Discrete Structures 3 Prereq Math 107 and a programming course. Discrete mathematics, trees, graphs, elementary logic, and combinatorics with application to computer science.

220 Introductory Linear Algebra 2 Prereq Math 171 or c/. Elementary linear algebra with geometric applications. Credit not normally granted for both Math 201 and 220.

251 Mathematics for Elementary School Teachers I 3 Prereq satisfactory math placement score or passing Math 101 or 107 with a C or better. Logical and historical development of present-day number systems and associated algorithms; methods of problem solving.

252 [N] Mathematics for Elementary School Teachers II 3 Prereq one year high school geometry; Math 251. Informal approach to basic ideas: mensuration, geometrical constructions, similarity, congruence, symmetry, probability, counting principles, measures of central tendency, graphical representation.

273 Calculus III 3 Prereq Math 172; 220 or c/. Credit not normally granted for both Math 140, 171, 202, 206.


302 Theory of Numbers 3 Prereq Math 172, 220. Divisibility properties of integers; congruences; Diophantine equations; quadratic residues.


315 Differential Equations 3 Prereq Math 220, 273. Linear differential equations and systems; series, numerical and qualitative approaches; applications.

320 [M] Elementary Modern Algebra 3 Prereq Math 220. Algebra as a deductive system; number systems; groups, rings, and fields.

325 Elementary Combinatorics 3 Prereq Math 220. Introduction to combinatorial theory; counting methods, binomial coefficients and identities, generating functions, occurrence relations, inclusion-exclusion methods.


351 Mathematics for Elementary School Teachers III 3 Prereq Math 252. Geometric transformations, coordinate methods in geometry, applications of school mathematics, mathematics software.


364 Principles of Optimization 3 Prereq Math 202 or 220. Algebra of linear inequalities; duality; graph theory; networks; linear programming; special algorithms; nonlinear programming; selected applications.

375 Vector Analysis 3 Prereq Math 315. Line integrals, gradient, curl, divergence; Stokes’ theorem, potential functions.

397 Mathematicians at Work 1 Introduction to various options in mathematics and the oral, written and leadership skills required for success in the field.

399 Mathematical Snapshots 1 Prereq Math 172. Character, life work, and historical importance of mathematicians from various eras and branches of mathematics.

401 [M] Introduction to Analysis I 3 Prereq Math 315. Properties of sets and sequences of real numbers; limits, continuity, differentiation and integration of functions; metric spaces.

402 [M] Introduction to Analysis II 3 Prereq Math 401. Sequences of functions, power series, multivariable calculus, inverse and implicit function theorems, Lagrange multipliers, change of variable in multiple integrations.

408 Mathematics for Economists 3 Prereq Math 201, 202. Mathematical topics applicable to modern economic analysis and research.

409 Elements of Mathematical Economics 3 Prereq Math 315, 401, 402.

410 Topics in Probability and Statistics 3 Prereq one course. Current topics in probability and statistics of mutual interest to faculty and students. Credit not granted for both Math 410 and 510.

415 Intermediate Differential Equations 3 Prereq Math 315. Linear systems; qualitative theory (existence, uniqueness, stability, periodicity); boundary value problems; applications.

416 (417) Simulation Methods 3 Prereq Cpt S 150 or 203; statistics course. Model formulation and simulation in business, industry, and government; simulation languages; analysis of simulation output; applications. Credit not granted for both Math 416 and 516.

418 Mathematical and Scientific Visualization 3 Prereq Math 172, 220, a programming language. Use of computers to image and visualize mathematical and scientific phenomena.

420 Linear Algebra 3 Prereq Math 220. Advanced topics in linear algebra including similarity transformations, canonical forms, bilinear forms.


430 Statistical Methods in Engineering 3 Prereq Math 172, 220. Random variables, sampling, hypothesis testing; linear, multiple, and nonlinear regression; analysis of variance for designed experiments; statistical computing. Credit not normally granted for both Math 430 and 442.

431 Topics in Science and Mathematics Teaching 1 or 2 May be repeated for credit. Prereq Bio S 430, or c/; Math 172, 251. For preselected teachers. New curricula and pedagogical techniques for middle school/high school instruction in science and mathematics. Credit not granted for both Math 431 and 531.

432 Foundations of Secondary School Mathematics 3 Prereq Math 303, 320, or prior teaching experience. For preselected teachers. Pre-algebra and algebra from a mature point of view; properties of systems; open sentences; equations; functions and graphs.
434 Approaches to Mathematics Teaching 2
Prereq teaching experience. For preselected teachers. Problem solving and the use of manipulative devices in the teaching of K-8 mathematics.

435 Astronomy and Astrophysics 3 May be repeated for credit; cumulative maximum 6 hours. Same as Astr 435.

439 Applications of School Mathematics 3 Prereq Math 432. For preselected teachers. Role of application in the classroom; examples using arithmetic, algebra, geometry, counting principles and probability; teaching concepts in applications.

440 Applied Mathematics I 3 Prereq Math 315.
Partial differential equations; Fourier series and integrals; Bessel functions; calculus of variations; vector calculus; applications.

441 Applied Mathematics II 3 Prereq Math 315.
Complex variable theory including analytic functions, infinite series, residues, and conformal mapping; Laplace transforms; applications.

442 Statistical Methods for Engineers and Scientists 3 Prereq Math 220; 360 or other statistics course. Hypothesis testing; linear, multilinear, and nonlinear regression; analysis of variance for designed experiments; quality control; statistical computing. Credit not normally granted for both Math 440 and 442.

443 Applied Probability 3 Prereq Math 172, 220.
Axioms of probability theory; random variables; expectation; generating function; law of large numbers; central limit theorem; Markov chains. Cooperative course taught jointly by WSU and UI (Math 451).

444 Introduction to Statistical Theory 3 Prereq Math 440 or 443. Sampling distributions; hypothesis testing and estimation; maximum likelihood; likelihood ratio tests; theory of least squares; nonparametrics. Cooperative course taught jointly by WSU and UI (Math 452).

448 Numerical Analysis 3 Prereq FORTRAN programming; Math 315. Fundamentals of numerical computation; finding zeroes of functions, approximation and interpolation; numerical integration (quadrature); numerical solution of ordinary differential equations.

453 Graph Theory 3 Prereq Math 220. Graphs and their applications, directed graphs, trees, networks, Eulerian and Hamiltonian paths, matrix representations, construction of algorithms.

461 Metallurgical Control and Optimization 3 Basics of process control and optimization applied to metallurgical engineering. Cooperative course taught by UI (Met 461), open to WSU students.

464 Operations Research and Game Theory 3 Prereq Math 273. Linear and integer programming; optimization problems; applications to economic and military strategies; rectangular games; minimax theory. Cooperative course taught by WSU, open to UI students (Math 507).

466 Optimization in Networks 3 Prereq Math 325 or 364. Formulation and solution of network optimization problems including shortest path, minimum cost flow, assignment, covering, postman, traveling salesman, and location.

472 Statistical Packages 3 (2-3) Prereq statistical methods course. No previous computer experience required. Computer techniques for statistical methods; comparison of capabilities of major statistical packages; analysis techniques, graphics, terminal use, data structures, numerical algorithms.

481 Topics in Analysis 3 May be repeated for credit.

497 Instructional Practicum 1 or 2 May be repeated for credit; cumulative maximum 2 hours. By interview only. S, F grading.

498 Career Experience Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Industrial or governmental career experience in a mathematics or mathematics-related area, supervised by qualified professionals. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Preseminar 1 May be repeated for credit; cumulative maximum 2 hours. S, F grading.

501 Real Analysis 3 Prereq Math 402. Metric spaces, convergence, continuous functions, infinite series, differentiation and integration of functions of one and several variables.


504 Measure and Integration 3 Prereq Math 501. Lebesgue measure, Lebesgue integration, differentiation, L spaces, general measure and integration, Radon-Nikodym Theorem, outer measure and product measures. Cooperative course taught jointly by WSU and UI (Math 571A).


507 Advanced Theory of Numbers 3 May be repeated for credit; cumulative maximum 6 hours. Analytic and algebraic number theory. Cooperative course taught by WSU, open to UI students (Math 507).


509 Foundations of Mathematics 3 The basis of mathematics in logic and set theory; continuum hypothesis; Gödel's theorems, recent developments. Cooperative course taught by WSU, open to UI students (Math 509).

510 Topics in Probability and Statistics 3 Graduate-level counterpart of Math 410; additional requirements. Credit not granted for both Math 410 and 510.

512 Ordinary Differential Equations 3 Prereq Math 522. Existence of solutions; linear systems; qualitative behavior, especially stability; periodic solutions. Cooperative course taught jointly by WSU and UI (Math 539).

516 (517) Simulation Methods 3 Graduate-level counterpart of Math 416; additional requirements. Credit not granted for both Math 416 and 516.

525 General Topology 3 Prereq Math 402. Sets, metric spaces, topological spaces; continuous mappings, compactness, connectedness, local properties, function spaces, and fundamental groups. Cooperative course taught jointly by WSU and UI (Math 511).

526 Advanced Topology 3 Prereq Math 421, 525.
General topology; basic ideas of algebraic topology. Cooperative course taught jointly by WSU and UI (Math 512).

527 Algebraic Topology 3 Prereq Math 526. Basic homotopy theory and application. Cooperative course taught by UI (Math 523), open to WSU students.

528 Algebraic Topology 3 Prereq Math 527.
Continuation of Math 527. Cooperative course taught by UI (Math 524), open to WSU students.

531 Topics in Science and Mathematics Teaching 1 or 2 May be repeated for credit. Graduate-level counterpart of Math 431; additional requirements. Credit not granted for both Math 431 and 531.

538 Topics in Modern Astrophysics 3 May be repeated for credit; cumulative maximum 9 hours. Same as Astr 538.

543 Approximation Theory 3 Univariate polynomial and rational approximation techniques; approximation using splines and wavelets; selected topics in multivariate approximation; algorithms for approximation. Cooperative course taught by WSU, open to UI students (Math 543).

544 Advanced Matrix Computations 3 Prereq Math 568. Advanced topics in the solution of linear systems and eigenvalue problems, including parallel matrix computations. Cooperative course taught by WSU, open to UI students (Math 544).

545 Numerical Analysis of Evolution Equations 3 Prereq Math 448. Discretization and numerical solution of partial differential equations of evolution; stability, consistency, and convergence; shocks; conservation of forms. Cooperative course taught by WSU, open to UI students (Math 545).

546 Numerical Analysis of Elliptic PDEs 3 Prereq Math 448. Methods of discretizing elliptic partial differential equations and solving the resulting systems of equations; error analysis. Cooperative course taught by WSU, open to UI students (Math 546).

550 Advanced Topics in Geometry 3 Projective, affine, and non-Euclidean geometries and their relation to abstract algebra and differential geometry. Cooperative course taught by WSU, open to UI students (Math 550).

553 (553) Ring Theory 3 Ideals, quotient rings, modules, radicals, semi-simple Artinian rings, Noetherian rings. Cooperative course taught by UI (Math 551), open to WSU students.

560 Galois Theory 3 Field extensions, automorphisms, normality, splitting fields, radical extension, finite fields, separability. Cooperative course taught by UI (Math 552), open to WSU students.
554 Linear Algebra 3 Prereq Math 420. Vector spaces, direct sums, quotient spaces, similarity, Jordan forms, inner products, eigenvalues, eigenvectors, spectral theory. Cooperative course taught by UI (Math 550), open to WSU students.

555 Topics in Combinatorics 3 May be repeated for credit; cumulative maximum 6 hours. Combinatorics, generating functions, recurrence relations, inclusion-exclusion, coding theory; experimental design, graph theory.


561 (541) Partial Differential Equations II 3 Prereq Math 560. Continuation of Math 560. Cooperative course taught by WSU, open to UI students (Math 541B).

562 Secondary School Mathematics 3 Same as T & L 562. Cooperative course taught jointly by WSU and U (Math 504).

563 Mathematical Genetics 3 Prereq GenCB 301; Stat 412, 430, or 443. Statistical approaches to Mendelian and population genetics; theories and estimation of genetic parameters; testing genetic hypotheses.

564 Topics in Optimization 3 May be repeated for credit. Prereq advanced multivariable calculus and a programming language; Rec Math 464, 544. Advanced topics in the theory and computing methodology in optimization with emphasis on real-life algorithmic implementation. Cooperative course taught by WSU, open to UI students (Math 564).

565 (548) Statistical Theory I 3 Prereq Math 273; 430 or 443. Probability spaces, combinatorics, multidimensional random variables, characteristic function, special distributions, limit theorems, stochastic processes, order statistics, applied probability. Cooperative course taught by WSU, open to UI students (Math 548).

566 (549) Statistical Theory II 3 Prereq Math 568. Continuation of Math 568. Statistical inference; estimation and testing hypotheses; regression analysis; sequential analysis and nonparametric methods. Cooperative course taught by WSU, open to UI students (Math 549).


568 Mathematical Foundations of Continuum Mechanics II 3 Prereq Math 570. Continuation of Math 570. Cooperative course taught by WSU, open to UI students (Math 571B).

573 Reliability Theory 3 Prereq Math 430, 443. Statistical concepts; stochastic material strengths and lifetimes; strength vs safety analysis; reliability of coherent systems; maintenance models; complex systems. Cooperative course taught jointly by WSU and UI (Math 571).

571 Seminar in Analysis V 1-3 May be repeated for credit. Cooperative course taught jointly by WSU and UI (Math 571A).

572 Seminar in Algebra V 1-3 May be repeated for credit. Cooperative course taught jointly by WSU and UI (Math 561).

585 Seminar in Applied Mathematics V 1-3 May be repeated for credit. Cooperative course taught by WSU, open to UI students (Math 585).

586 Seminar in Topology and Geometry V 1-3 May be repeated for credit. Cooperative course taught by WSU, open to UI students (Math 586).

587 Seminar in Number Theory V 1-3 May be repeated for credit. Cooperative course taught by WSU, open to UI students (Math 587).

588 Seminar in Precollege Mathematics Education 3 Same as T & L 563.

590 Seminar in Undergraduate Mathematics Instruction V 1-3 May be repeated for credit; cumulative maximum 6 hours. Curricular and other problems of teaching mathematics to undergraduates.

591 Seminar in the History of Mathematics I 1 Topics in the history of mathematics to 1800.

592 Seminar in the History of Mathematics II 1 Topics in the history of mathematics from 1800 to present.

600 Special Projects or Independent Study Variable credit. S, F grading.

602 Internship V 2-12 May be repeated for credit. Prereq 40 hours graduate work. A structured internship from three to nine months; teaching at the postsecondary level or applied work in a non-academic environment. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

School of Mechanical and Materials Engineering

Professor and Chair, S. Antolovich; Professors, R. A. Altenkirch, I. N. Chung, R. W. Crain, C. T. Crowe, J. L. Ding, C. H. Hamilton, J. P. Hirth, R. G. Hoagland, D. V. Hatton, D. B. Masson, O. A. Plumb, B. R. Ramaprian, D. E. Stock, T. R. Trout, R. V. Subramanian; Associate Professors, W. J. Grantham, W. E. Johns, M. G. Norton, C. Pezeski, P. G. Vaidya, H. M. Zbib; Assistant Professors, S. Jayaram, U. Jayaram, C. Richards, R. Richards, L. V. Smith; Tri-Cities Associate Professor and Program Coordinator, W. C. Kinsel (M E); Professor, L. C. Olsen (MSE); Associate Professor, D. Lindstrom (M E); Associate Professor, R. Westphal (M E); Vancouver Associate Professor, J. Swearengen.

MECHANICAL ENGINEERING

The mechanical engineering program is concerned with (a) the use and economical conversion of energy from natural sources into other useful energy to provide power, light, heat, cooling and transportation, (b) the design and production of machines to lighten the burden of human work, (c) the creative planning, development and operation of systems for using energy, machines and resources, and (d) the processing of materials into products useful to people. Employment opportunities are available for participation in mechanical design, systems design, equipment development, manufacturing, CAD/CAM, project engineering, production management, applied research and sales and service.

The curriculum emphasizes foundation courses at the third year which are fundamental to all aspects of mechanical engineering. These courses emphasize both analysis and design while accompanying laboratory courses provide opportunities for hands-on experiences. Computer applications are interwoven throughout the program. In the fourth year each student selects an emphasis area with two design-focused electives to build upon material from the foundation courses and to integrate across the emphasis area. The undergraduate program is completed with both a capstone project design course and a capstone laboratory course. Graduates are prepared to enter the field as engineers or to continue into a graduate program. An engineering internship program is available for students to gain industrial experience during their academic careers. An integrated BS/MS program facilitates the completion of a master’s degree in one additional year beyond the bachelor’s degree.

The school offers courses of study leading to the degrees of Bachelor of Science in Mechanical Engineering (accredited by the Accrediting Board for Engineering and Technology), Master of Science in Mechanical Engineering, and Doctor of Philosophy (Mechanical Engineering) and participates in the interdepartmental program leading to the degree Doctor of Philosophy (Engineering Science).

MATERIALS SCIENCE AND ENGINEERING

Materials science and engineering is the application of methods and principles of the pure sciences to the study and utilization of engineering materials. The undergraduate program focuses on (a) the relationship of the microscopic structure, e.g. crystal structure and defects to the macroscopic properties of materials, e.g. strength, (b) the relationship of materials, (c) experimental techniques for characterizing physical, chemical and structural properties of materials and, (d) the design and selection of appropriate materials for given engineering applications.

The specific fields of application covered by research and instruction programs can be expressed by the nominal designations of metals (metalurgy), polymers, ceramics, electronic materials and composites. Due to the diversity of useful properties encountered in materials engineering, attention must be given to application and peculiarities of these specific types of materials. Where possible, however, a generalized approach toward the study of materials, their properties, their selection, and their utilization is fostered. The broad-based instructional approach prepares graduates for careers in a wide range of industrial settings, from aerospace companies to corporations specializing in the production of solid state electronics. In addition, the undergraduate curriculum prepares students for continued education at the graduate level. Because of the diversity of useful properties encountered in materials engineering, attention must also be given to application and peculiarities of specific materials types.

The school offers courses of study leading to the degrees of Bachelor of Science in Materials Sci-
ence and Engineering (accredited by the Accrediting Board for Engineering and Technology) and the Master of Science in Materials Science and Engineering. The school participates in the interdepartmental program leading to the degree of Doctor of Philosophy (Engineering Science) and an interdisciplinary program leading to the Doctor of Philosophy (Materials Science).

Degree Program Requirements

Students in the Four-Year Degree Agreement program must certify on time, take all indicated courses in first two years, follow remainder of schedule, and have an MSE or M E advisor throughout entire program.

MATERIALS SCIENCE AND ENGINEERING DEGREE PROGRAM (132 HOURS)  ✔FYDA

Freshman Year
First Semester  Hours
Chem 105  [P] (GER)  4
Engl 101  [W] (GER)  3
GenEd 110  [A] (GER)  3
Math 171  [N] (GER)  4
MSE 110  2

Second Semester  Hours
Biological Sciences  [B] (GER)  3
Chem 106  [P] (GER)  4
Cpt S 203  2
GenEd 111  [A] (GER)  3
Math 172  4

Sophomore Year
First Semester  Hours
Arts & Humanities  [H,G] (GER)  3
C E 211  3
Econ 102  [S] (GER)  3
Math 220  2
Math 273  2
Phys 201  [P] (GER)  4

Second Semester  Hours
C E 215  3
Intercultural  [I,G,K] (GER)  3
Math 315  3
MSE 301  3
Phys 202  [P] (GER)  4

Junior Year
First Semester  Hours
E E 304  2
M E 310  3
M E 316  [M]  3
MSE 312  3
MSE 320  2
Physical Science Elective  3
Complete Writing Portfolio  3

Second Semester  Hours
Engineering Science Elective  3
MSE 314  2
MSE 316  3
MSE 321  3
MSE 323  1
MSE 413  3
Physical Science Elective  3

Senior Year
First Semester  Hours
Engl 402  [W] (GER)  3
MSE 401  3
MSE 402  3
MSE 403  3
MSE 412  1
MSE 425  [M]  2
Tier III Capstone  [H,G,S,K] (GER)  3

Second Semester  Hours
MSE 404  3
MSE 405  3
MSE 420  3
MSE 426  [M]  2
MSE 450  1
Technical Elective  3

1 Selected from: Chem 331, 333, 336; Chem 340, 341, 342; or Phys 303, 304.
2 One from:  C E 212, Ch E 480, E E 214, 305, 341, 342; or Phys 303, 304.
3 Upper-division C E, Ch E, Chem, Cpt S, E E, Math, M E, Phys, or Stat course.

MECHANICAL ENGINEERING DEGREE PROGRAM (131 HOURS)  ✔FYDA

Freshman Year
First Semester  Hours
Chem 105  [P] (GER)  4
Engl 101  [W] (GER)  3
GenEd 110  [A] (GER)  3
M E 103  3
Math 171  [N] (GER)  4

Second Semester  Hours
Biological Sciences  [B] (GER)  3
Chem 106  [P] (GER)  4
GenEd 111  [A] (GER)  3
M E 103  3
Math 172  4

Sophomore Year
First Semester  Hours
C E 211  3
Cpt S 203 or 251  2
Econ 102  [S] (GER)  3
Math 220  2
Math 273  2
Phys 201  [P] (GER)  4

Second Semester  Hours
C E 215  3
Intercultural  [I,G,K] (GER)  3
Math 315  3
MSE 301  3
Phys 202  [P] (GER)  4

Junior Year
First Semester  Hours
E E 304  2
M E 310  3
M E 313  3
M E 316  [M]  3
MSE 301  3
Complete Writing Portfolio  3

Second Semester  Hours
M E 305  2
M E 310  3
M E 311  1
M E 348  3
M E 349  1
M E 404  3
M E 414  3

Senior Year
First Semester  Hours
Engl 402  [W] (GER)  3
Intercultural  [I,G,K] (GER)  3
M E 305  2
Emphasis Area Elective  3
M E or MSE Technical Elective  3
Technical Elective  3

1 Choose two from one emphasis: Design & Manufacturing:  M E 415, 474; Applied Mechanics:  M E 472, 481; Energy and Environmental Systems:  M E 402; 405 or 435; Fluids & Aerospace:  M E 402; 407 or 439.
2 Upper-division Math, Stat, or Computer Science (Cpt S 430 or 445).
3 Approved 300-400-level technical course or Mgt 301 or Mktg 360.

MATERIALS SCIENCE AND ENGINEERING MINOR

A minor in MSE requires 16 credits:  M E 320, MSE 301 or 302, plus 12 credits from:  E E 496, M E 310, MSE 401, 402, 403, 404, 405, 413.

MECHANICAL ENGINEERING MINOR

A minor in M E requires 16 credits of 300-400-level M E courses, including two of the following four courses:  M E 303, 348, 404, 414.

Certification Mechanical Engineering

Students who have completed at least 30 semester hours of course work and who have completed C E 211, Chem 105, Engl 101, M E 103, Math 171, 172, and Phys 201 or their equivalents are eligible to apply for certification into the Mechanical Engineering Program. Applications for certification will be reviewed by a departmental committee. When it becomes necessary to limit enrollment, the overall g.p.a. as well as the g.p.a. for the prerequisite courses listed above, will be important factors. Application deadline dates are March 1 for the fall semester and October 1 for the spring semester. Students who have not completed all of the prerequisite courses will be placed in a pre-engineering major and assigned to a mechanical engineering advisor. Additional details and application forms are available from the school’s office of student services.

Certification Materials Science and Engineering

Certification into the Bachelor of Science program in Materials Science and Engineering is limited to
Transfer Students

The School of Mechanical and Materials Engineering cooperates with the community colleges in Washington to minimize problems associated with transfer. Inquiries are welcome. A strong preparation in mathematics, physics, and chemistry is necessary prior to transfer to minimize the time required at Washington State University to complete the bachelor’s degree requirements.

The requirements for direct entry into the mechanical engineering or materials science and engineering programs upon transfer are the same as listed above for certification. Transfer student applications will be handled by the Admissions Office and sent to the school so that students do not need to make separate application to the school.

Preparation for Graduate Study

Before undertaking graduate study, a student should have completed substantially the equivalent of the above schedule of studies. Students from other scientific disciplines (such as physics, chemistry, mathematics) are encouraged to apply. Specific details concerning prerequisites for such students are worked out on an individual basis.

Description of Courses

Mechanical Engineering

M E

103 Engineering Graphics 3 (1-6) Orthographic theory, conventions, and visualization; isometric and oblique pictorials; graphical analysis and solution of spatial problems, computer-aided drafting. Cooperative course taught by WSU, open to UI students (ME 101).

120 Innovation in Design 2 Engineering and architectural creativity; role, function, enhancement, integration in design methods.

125 M E Merit Experience 2 Prereq by interview only. A hands-on, project-oriented course emphasizing team work and creativity in engineering design, conducted in an enriched learning environment.

301 Fundamentals of Thermodynamics 3 Prereq Physics 201; Rec Math 315. Thermodynamic properties of matter, ideal and real gases, work and heat, first and second laws and their application to engineering systems. Cooperative course taught jointly by WSU and UI (ChE 321).

303 Fluid Dynamics 3 Prereq Physics 202; major in engr; Rec M E 301 or c//, Laminar and turbulent flow of ideal and viscous fluids, pipe flow, boundary layers, wing theory, supersonic flow, nozzles, shock waves. Cooperative course taught jointly by WSU and UI (CE 320).

305 Thermal and Fluids Laboratory 2 (1-3) Prereq M E 303, major in engr; Rec E E 305. Instrumentation, data acquisition and control, and theory verification in the thermal and fluid sciences.

310 Manufacturing Processes 3 Prereq MSE 301, major in engr. Cutting operations, metal forming by deformation, material fabrication, and nontraditional processing.

311 Manufacturing Processes Laboratory 1 (0-3) Prereq M E 310 or c//, major in engr. Manufacturing processes laboratory in machining welding, forming; manufacturing project.

312 Kinematic Analysis 3 Prereq C E 212; major in engr. Motion transfer; velocity, acceleration, and inertia forces in machines; static and dynamic force systems; cam profiles; gears and gearing systems. Cooperative course taught by UI (ME 323), open to WSU students.

313 Engineering Analysis 3 Prereq Math 315, major in engr.; Rec FORTRAN E C program. Analysis and modeling of engineering problems utilizing numerical and mathematical techniques and computers.

316 [M] Systems Design 3 Prereq MSE 301 or c//; Rec C E 211. Engineering design process for systems and components; design criteria, creativity, engineering economics, engineering statistics, standards, product safety; design projects.

320 Materials Laboratory 1 (0-3) Prereq C E 215 or c//, major in engr. Mechanical behavior of materials and application to engineering structures.

348 Dynamics Systems 3 Prereq M E 313, major in engr. Fundamentals of vibration analysis, control systems, system modeling and dynamcis analysis.

349 Dynamic Systems Laboratory 1 (0-3) Prereq M E 348 or c//. Laboratory investigations of dynamic systems.

402 Thermodynamic Systems 3 Prereq M E 301, major in engr. Power and refrigeration cycles, thermodynamic relations, mixtures, reacting systems and combustion, phase and chemical equilibrium, compressible flow.

404 Heat Transfer 3 Prereq M E 303 or c//; major in engr. Conduction, radiation, and convection heat transfer; analytical, numerical, experimental results for solids, liquids, and gases; heat exchanger design. Cooperative course taught jointly by WSU and UI (ME 345).

405 Thermal Engineering 3 Prereq M E 404 or c//. Heat, mass, and momentum transfer in thermal systems and system components; computer-aided analysis; optimization and design of thermal systems.

406 [M] Experimental Design 3 (1-6) Prereq M E 305; 404; major in M E; Rec M E 348. Designing, conducting, and reporting of experimental investigations involving mechanical equipment.

407 Computational Fluid Dynamics 3 Prereq M E 303. Basic concepts and applications of computational fluid dynamics to the analysis and design of fluid systems and components.

413 Mechanics of Solids 3 Same as MSE 413.


415 Integrated Design 3 Prereq M E 310, 414 or c//; major in engr. Methodologies to optimize product design incorporating functionality, reliability, manufacturability and maintainability.

416 Design Project 3 (1-6) Prereq M E 348; 404; 414; Rec M E 316. Integrative design in mechanical engineering; multidisciplinary design project considering both technical and nontechnical contexts; organizational dynamics and communications.

419 Air Conditioning 3 Prereq M E 404. Principles of heat and moisture transfer; air motion and purity in buildings; design of systems. Cooperative course taught jointly by WSU and UI (ME 444).

420 Capstone Engineering Design 3 (1-6) Prereq senior in engr. Integrative design in engineering; multi-disciplinary design project considering both technical and nontechnical contexts; organizational dynamics and communications.


435 Thermal Energy Systems 3 Prereq M E 404 or c//. Thermal energy systems of current interest including combustion, nuclear, and direct conversion based systems.

436 Combustion Engines 3 Prereq M E 303. Internal combustion engines; spark ignition engines, diesels, and gas turbines.

439 Applied Aerodynamics 3 Prereq M E 303. Aerodynamic lift and drag; circulation; boundary layers, application to vehicle and structural design and pollution control.

442 Robotics 3 Same as E E 442.

449 Vibrations and Noise Control 3 Prereq M E 348. Vibration systems and noise producing mechanisms; design for noise and vibration control. Cooperative course taught jointly by WSU and UI (ME 472).

450 Stress Design Codes 3 Prereq C E 215. Theoretical bases and application of the principal regulatory stress analysis design codes.


460 Nuclear Reactor Engineering 3 Prereq M E 461. Nuclear reactor design problems in thermal dynamics, fluid flow, heat transfer, fuel preparation, waste disposal, materials selection; discussion of reactor types. Cooperative course taught by UI (NE 460), open to WSU students.

461 Introduction to Nuclear Engineering 3 Prereq junior in engr or Ph S. Applied nuclear physics; application to the nuclear fuel cycle and nuclear reactor core design; nuclear reactor systems and safety. Cooperative course taught jointly by WSU and UI (NE 360).

463 Probabilistic Risk Assessment and Applications 3 Prereq senior in engr or physical science. Basics of reliability and probabilistic risk assessment (PRA); applications in operations and maintenance practiced in nuclear industry.

467 Nuclear Fuel Cycle Economics 3 Same as Ch E 467.
470 Dynamics of Machinery 3 Prereq M E 348. Kinematics and kinetics of mechanisms and machines; static and dynamic force analyses of planar and spatial systems; synthesis for functionality.


473 Computer-aided Design 3 (2-3) Prereq M E 313. Interactive computer programming and graphics in the design of engineering systems.

474 Advanced Manufacturing Processes 3 Prereq M E 310. Mechanical and metallurgical fundamentals of metal machining and materials processing by deformation; manufacturing systems concepts in production.

475 Manufacturing Automation 3 (2-3) Prereq M E 310, 348 or c//. Computer control of manufacturing processes; numerically controlled machine tools, robotics, control algorithms, component and system design.

481 Control Systems 3 Prereq M E 348. Analysis and design of feedback control systems. Cooperative course taught jointly by WSU and UI (ME 481).

495 Internship in Mechanical Industry 3 or 6 May be repeated for credit; cumulative maximum 12 hours. Prereq major in M E or MSE. By interview only. Students work full time on engineering assignment in approved industries with industrial and faculty supervision. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Continuum Mechanics 3 Prereq graduate standing. Unified presentation of principles common to all branches of solid and fluid mechanics; viscous fluids, elasticity, viscoelasticity, and plasticity.

513 Conduction Heat Transfer 3 Rec M E 404. Analytic methods applied to multidimensional steady-state and transient conduction heat transfer, melting and ablation, numerical methods.

514 Thermal Radiation Processes 2 or 3 Rec M E 404. Thermal radiation within enclosures, ideal and real surfaces; radiative processes within absorbing/ emitting media; applications to furnaces, solar energy systems. Cooperative course taught jointly by WSU and UI (ME 547).

515 Convective Heat Transfer 3 Rec M E 404. Derivation of the energy conservation equation; laminar and turbulent forced convection heat transfer with internal and external flow; free convection. Cooperative course taught jointly by WSU and UI (ME 546).


522 Viscous Fluid Mechanics 3 Rec M E 521. Deterministic fluid phenomena, exact solutions of Navier-Stokes equations, boundary layer analysis, vorticity generation and development, stability, and transition.

526 Microscopic Thermodynamics 3 Microscopic development of equilibrium; classical and quantum particle statistics; statistical description of real and ideal gases, solids, and liquids. Cooperative course taught jointly by WSU and UI (ME 526).

527 Macroscopic Thermodynamics 3 Advanced thermodynamics from macroscopic viewpoint; basic postulates, equilibrium, stability, property relations; application to thermal-fluid and solid mechanics; irreversible thermodynamics. Cooperative course taught jointly by WSU and UI (ME 527).


531 Theory of Plasticity 3 Rec M E 501. The fundamentals of the theory of plasticity; the classical theory of plasticity; the classical theory and modern continuum theories of large elasto-plastic deformations.

532 Finite Elements 3 Same as C E 532.

533 Experimental Materials in Manufacturing Processes 3 Rec M E 530. Theoretical and experimental techniques in engineering material behavior and manufacturing processes. Cooperative course taught by WSU, open to UI students (ME 533).

534 Mechanics of Composite Materials 3 Rec C E 314. Stress and strain in composites; analysis of properties; stiffness and strength theories; laminated beams and plates; dynamic behavior; environmental effects. Cooperative course taught by UI, open to WSU students (ME 534).

535 Tribology 3 Rec M E 530. Friction, wear, and lubrication of solids with emphasis on metals.

537 Fracture Mechanics and Mechanics 4 Same as MSE 537.

540 Advanced Dynamics of Physical Systems 3 Newtonian dynamics, rotating coordinate systems; Lagrangian and Hamiltonian mechanics; gyroscopic mechanics, other applications. Cooperative course taught by WSU, open to UI students (M E 505).

541 Advanced Mechanical Vibrations 2 or 3 Rec M E 449. Response of single and multi degree of freedom systems; finite element formulation; matrix methods, random vibrations. Cooperative course taught jointly by WSU and UI (ME 572).

542 Optimal Control of Dynamic Systems 3 Introduction to optimal control theory, differential games, and multiple criteria systems; applications in engineering, biology, economics, agriculture, and medicine. Cooperative course taught by WSU, open to UI students (ME 542).

545 Optimal Systems Design 3 Parameter design optimization techniques for nonlinear systems; theory, numerical methods, and applications; multiple criteria optimal trade-off analysis and game theory.

546 Nuclear Reactor Theory 3 Rec M E 540 or 541. Fundamentals of nuclear reactor theory, perturbation methods, and reactor core design. Cooperative course taught by WSU, open to UI students (ME 556).

548 Acoustics 3 Fundamental principles of linear and nonlinear acoustics and its applications.

551 Turbulent Flow 3 Rec C E 550 or M E 521. Turbulent flow; dimensional analysis, statistical models and descriptions of organized structures.

552 Experimental Methods in Thermal-fluid Science 3 (2-3) Theory and practice in the use of instruments for measuring temperature, velocity, pressure and concentration; measurement of classical flow fields.

553 Two-phase Flow V 1-3 May be repeated for credit, cumulative maximum 3 hours. Rec M E 521. Fundamentals of the flow of fluids with two phases and applications. Cooperative course taught by WSU, open to UI students (ME 553).

556 Numerical Modeling in Fluid Mechanics 3 Same as C E 556. Cooperative course taught by WSU, open to UI students (ME 556).

561 Combustion 3 Rec M E 521. General combustion phenomena, chemical reactions, combustor modeling, laminar and turbulent flame theory, emissions. Cooperative course taught by WSU, open to UI students (ME 561).

562 Nuclear Reactor Theory 3 Prereq M E 461; differential equations. Basic reactor neutron theory including the transport equation; multi-group, multi-region diffusion theory; kinetics; and perturbation theory.

563 Advanced Nuclear Reactor Engineering 3 Prereq M E 461. Reactor power distribution; thermal and exposure limits; critical heat flux and pressure design; neutron/thermal-hydraulic relationships; transient/accident analysis.

569 Advanced Topics in Thermal and Fluid Sciences V 1-3 May be repeated for credit. Advanced topics in thermodynamics, heat transfer or fluid mechanics; analytical and experimental methods.

574 Advances in Manufacturing Science 3 Rec M E 474. Advances in machinability, formability and precision engineering; new manufacturing processes of precise and electronic components. Cooperative course taught by WSU, open to UI students (ME 574).

575 Computer Integrated Manufacturing 3 Rec M E 475. Hierarchical control of manufacturing systems; interface and network considerations; process planning; optimization strategies.

579 Advanced Topics in Design and Manufacturing V 1-3 May be repeated for credit.

598 Seminar 1 May be repeated for credit. Seminar on current research interests. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Materials Science and Engineering

MSE 110 Introduction to Materials Science 2 Introduction to the science and technology of metals, polymers, ceramics and composites.

120 Innovation in Design 2 Same as M E 120.

301 Materials Science 3 Prereq Chem 106, Phys 202 or c//. Structure of materials, phase equilibrium, phase transformations, and mechanical properties.

302 Materials Science 3 Prereq Chem 105, Phys 202 or c//. Structure of materials, phase equilibrium, transformations; electronic structure of solids; thermal, electrical, and magnetic properties of materials; semiconductors, dielectrics.
309 Metallurgy Transport Phenomena 3 Prereq Math 315 or c//. Introduction to principles of metallurgy transport phenomena including heat, mass, and momentum transfer. Cooperative course taught by UI (Met 309), open to WSU students.

312 Thermodynamics and Phase Equilibrium 3 Prereq MSE 301. Concepts of activity, equilibrium, solution properties; relationship between free energy, composition, and temperature; heterogeneous equilibria.

314 Equilibrium Diagrams 2 Prereq MSE 301, 312. Interpretation of equilibrium diagrams; free-energy vs. composition diagrams; ternary and higher order systems; pressure-temperature relationships.

316 Kinetics of Chemical and Physical Reactions 3 Kinetics of heterogeneous chemical reactions; mechanisms and kinetics of diffusion; oxidation and other gas-metal reactions; polarized electrodes; corrosion; boundary migration; nucleation and growth; eutectoid and martensitic transformations.

320 Metallurgy 2 (0-6) Prereq MSE 301 or c//; major in MSE. Principles and techniques of optical metallography and other laboratory methods used in modern materials science and engineering.

321 Materials Characterization 3 Prereq MSE 301. Properties of x-rays, scattering and diffraction; crystal structures; x-ray diffraction methods, transmission electron microscopy and scanning electron microscopy.

323 Materials Characterization Lab 1 (0-3) Prereq c// in MSE 312. Laboratory exercises on materials characterization: x-ray, TEM, SEM.

341 Particulate Materials Processing 4 (3-3) Prereq M E 310. Engineering science of particulates; powder production, powder properties, separation; design of systems applied to metals, ores, and concentrates. Field trips required. Cooperative course taught by UI (Met 341), open to WSU students.

401 Metallic Materials 3 Prereq MSE 301. Major alloy systems and manufacturing processes; materials selection.

402 Polymeric Materials 3 Prereq MSE 301. Structural characterization, syntheses, and actions of polymeric materials; relationships between structure and properties, viscoelasticity, deformation, and physical behavior of polymers.

403 Ceramic Materials 3 Prereq MSE 301. Processing, characteristics, microstructure, and properties of ceramic materials.

404 Engineering Composites 3 Prereq MSE 402. Basic concept in design and specifications of engineering composites.

405 Physical Properties 3 Prereq MSE 301. Introduction to electron theory and lattice vibration theory of solids; applications to thermal, electrical, and magnetic properties of solids.

407 Materials Fabrication 3 Fundamentals of casting, solidification, metal working, and joining of metallic materials; emphasis on interaction between processing, properties, and structure. Field trip required. Cooperative course taught by UI (Met 407), open to WSU students.

408 Adhesion and Adhesives for Engineers 3 Prereq MSE 402 or c//. Adhesion theory, adhesives and bonded joint testing for engineers.

412 Polymers Laboratory 1 (0-3) Prereq MSE 402. Laboratory experiments exploring polymer synthesis, mechanical testing, physical characterization.

413 Mechanics of Solids 3 Prereq C E 215, MSE 301. Elasticity, elastic stress distributions; plastic deformation of single and polycrystals; introduction to dislocation theory and its applications: creep, fracture, fatigue.

415 Materials Selection and Design 3 Prereq Chem 331. Selection of materials for use in structural applications; consideration of environment, stress conditions, cost and performance as guide to properties. Cooperative course taught by UI (Met 415), open to WSU students.

420 Capstone Engineering Design 3 (1-6) Same as M E 420.

421 Light Metals 3 Fundamental design of the light metals aluminum, magnesium, and titanium alloys; applications of these materials. Cooperative course taught by UI, open to WSU students (MET 421).

425 [M] Physical Metallurgy Laboratory I 2 (0-6) Prereq MSE 316; major in MSE. Selected experimental work in physical metallurgy.

426 [M] Physical Metallurgy Laboratory II 2 (0-6) Prereq MSE 425, major in MSE. Selected experimental work in physical metallurgy.

429 Powder Metallurgy 3 Fundamentals of conventional press-and-sinter powder metallurgy (PM) and more advanced techniques; commercial applications of PM parts. Cooperative course taught by UI (MET 429), open to WSU students.

450 Seminar 1 May be repeated for credit. For seniors only.

461 Metallurgical Control and Optimization 3 Basics of process control and optimization applied to metallurgical engineering. Cooperative course taught by UI (Met 461), open to WSU students.

499 Special Problems 1-4 May be repeated for credit. S, F grading.

501 Advanced Topics in Materials Science 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Chemical crystallography, microstructure, ultra-structure, theories of crystalline and non-crystalline solids, rheology and fracture mechanism of materials. Cooperative course taught by WSU, open to UI students (Met 544).

503 Advanced Topics in Materials Engineering 1-3 May be repeated for credit; cumulative maximum 6 hours.

511 Deformation 3 Rec MSE 413. Elementary dislocation theory and its application to some important deformation processes.

513 Crystal Plasticity 3 Rec Math 440. Dislocation theory; slip; climb; mechanical properties of crystals, compounds and alloys.

514 Thermodynamics of Solids 3 Rec MSE 312. Thermodynamic properties of solid solutions; models for substitutional and interstitial solutions; configurational and non-configurational contributions; calculation of phase diagrams.

515 Electronic Properties of Materials 3 Electron energy bands in solids, electrical conduction in metals and semiconductors, applications to semi-conduction devices based on silicon and III-V compounds.

516 Phase Transformations 3 Rec MSE 314, 316. Thermodynamics, nucleation, interface motion, mechanisms and kinetics of chemical reactions between solid metals and their environment.

519 Corrosion and Oxidation of Metals 3 Prereq MSE 316. Basic corrosion and oxidation mechanisms for various metals with emphasis on those pertaining to stainless steels.

520 Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Reporting problems, research and research methods in materials science and engineering. S, F grading.

537 Fracture Mechanics and Mechanisms 4 Fracture mechanics and mechanisms and the microstructural origins of toughness in metals, polymers and composites.

543 Natural and Synthetic Polymeric Materials 3 Rec MSE 402. Glassy, crystalline, and rubbery states of synthetic and natural polymers.

547 Basic Principles of Adhesion 3 Rec MSE 402. Principles of interfacial bonding applied in the engineering of polymers, wood and heterophase systems.

548 Reinforced Polymer and Wood-based Composites 3 Fundamentals of composite materials having polymers and wood as major components.

549 Nondestructive Testing of Wood-based Materials 3 Same as C E 536.

550 Parameters for Synthesis of Wood Composite Materials 3 Theory and practice of wood composite materials, manufacture and development. Cooperative course taught by WSU, open to UI students (ForPr 537).

592 Transmission Electron Microscopy 3 Development of the principles and applications of electron optics in microscopy.

593 Practical Electron Microscopy 1 (0-3) Prereq MSE 592 or c//. Experimental methods in electron microscopy and microanalytical techniques, for materials science. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Program in Basic Medical Sciences


The Program in Basic Medical Sciences is an integral part of the Washington-Idaho-Montana-Idaho (WAMI) Cooperative Program in Medical Education. Course work is parallel with and equivalent to the first year curriculum of the University of Washington School of Medicine. The entire program is taught in concert with the University of Idaho. Courses are taught on both campuses with faculty from WSU and the University of Idaho taking part in each, all WAMI students being taught as a single class. All WAMI students are members of the first year class of the University of Washington School of Medicine, and all courses apply to the M.D. degree granted by that university.
Because of specialized support material required and the nature of course content, course enrollment is restricted. With the approval of the course director and the student’s advisor, certain of the courses listed below may be taken by graduate students enrolled in graduate programs leading to advanced degrees granted by other academic units. In accordance with School of Medicine policy, all Med S courses are S, F graded.

### Description of Courses

#### Medical Sciences

**501P Medical Preceptorship** 1 May be repeated for credit; cumulative maximum 2 hours. For WAMI students only. Practicum, observations of medical practice with individual physician volunteers.

**502P Problem-based Learning** 1 For WAMI students only. Studies of cases integrating content from basic science courses.

**510P Histology** 3 (2-3) Description and microscopic examination of cell types, tissues, and major organs of the human body.

**511P Anatomy of the Trunk** 5 (4-3) For WAMI students only. Extensive regional study of human thorax, abdomen, pelvis, and perineum; embryology and living anatomy; correlates gross with clinical anatomy.

**512P Basic Mechanisms in Cellular Physiology** 3 Paternal at the cellular level.

**513P Introduction to Clinical Medicine I** 1 For WAMI students only. Instruction in communications skills and interview techniques to form the basis for the eventual doctor-patient relationship.

**514P Molecular and Cellular Biology I** 3 Classical molecular and cellular biochemistry, cellular physiology and molecular genetics.

**516P Systems of Human Behavior** 2 Physical and psychological development of the individual; conceptual systems and models of behavior related to medicine.

**520P Cell and Tissue Response to Injury** 3 Patterns of cell and tissue response to injury; inflammation; neoplasia.

**521P Natural History of Infectious Disease and Chemotherapy** 5 (4-3) Pathogenesis and immunity of infectious diseases, clinical manifestations and control of representative bacterial, fungal, parasitic, and viral infectious diseases.

**522P Introduction to Clinical Medicine II** 2 For WAMI students only. Communication skills as related to patients and dealing with problem identification and patient history.

**523P Medical Immunology** 2 For WAMI students only. Principles of immunology and their relationship to human medicine.

**524P Molecular and Cellular Biology II** 2 Continuation of Med S 514.

**526P Systems of Human Behavior II** 2 Continuation of Med S 516 with an emphasis on models of behavior, normality and abnormality related to medicine.

**530P Epidemiology** 2 Basic principles of epidemiological processes; statistical inference from clinical data.

### Department of Microbiology

**Professor and Department Chair:** L. P. Mallavia; **Professors:** M. L. Kahn, K. Postle, W. R. Rayburn, K. D. Spence; **Associate Professors:** K. P. Bertrand, R. E. Haribert, N. S. Magnuson, J. L. Paznakas; **Assistant Professors:** M. Konkel, P. Mister, L. Xu; **Professor Emeriti:** K. L. McIvor, H. M. Nakata; **Adjunct Associate Professors:** F. Brockman, L. Thomashow; **Instructor:** M. Sanchez-Lanier; **Laboratory Instructor:** C. Small.

Microbiology is both a basic and an applied science. At the undergraduate level, the Department of Microbiology offers options in microbiology and medical technology, leading to a Bachelor of Science degree in Microbiology. The department also participates in the interdisciplinary molecular biology minor, listed separately in this catalog. Majors are required to develop a strong background in the basic sciences before taking courses in microbiology and those required by the various options. Employment opportunities in industrial, government, hospital and private laboratories and agencies are excellent for qualified graduates. A one-year hospital internship in an accredited school of medical technology is required after graduation for those interested in becoming certified medical technologists. Career opportunities in this area are also excellent. Majors may also prepare for advanced degrees and easily complete the requirements for application to medical, dental, veterinary or other professional schools.

At the graduate level, the department offers programs leading to the degrees of Master of Science in Microbiology and Doctor of Philosophy. Areas in which the department is prepared to direct research include the biology of membranes, bioremediation, molecular genetics, molecular basis of cell-cell interactions and virulence, microbial differentiation, cellular and tumor immunology and the regulation of the immune response, diseases of insects and their development of resistance to microbial pathogens.

### Degree Program Requirements

At least 40 of the total hours required for the bachelor’s degree in this department must be in 300-400-level courses. For majors, a total of 28 credit hours must be in the departmental courses and a minimum g.p.a. of 2.0 is required in these courses for graduation. None of the core courses or departmental courses may be taken pass, fail.

#### Microbiology Option

GenCB 301; Micro 301, 310, 311, 412, 413, 414, 415, 9 additional hours Micro; and one advanced lecture-lab course outside the department are required as a minimum. Those contemplating graduate study are urged to take Chem 340-343 series (in lieu of Chem 240).

#### Medical Technology

Same as microbiology option except that Micro 350 and Zool 417 are required. Micro 350 partially fulfills requirement for 9 credits of Micro electives and Zool 417 fulfills the requirement for one advanced lecture-lab course outside the department. Zool 251 is strongly recommended. To become a certified medical technologist, a one-year internship at an accredited school of medical technology is required after graduation.

### Microbiology and Medical Technology Degree Programs

**120 Hours**

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<tr>
<th>FYDA</th>
<th>Freshman Year</th>
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<tr>
<td></td>
<td>First Semester</td>
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<tr>
<td>Bio S 103 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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311 Diagnostic Medical Bacteriology 2 (0-6) Prereq Micro 310 or c//. Techniques and tests for the identification of bacteria pathogenic for humans.

331 Microbial Ecology 3 Prereq Bio S 104; Chem 240 or c//. Discussion of microorganisms behavior in nature and microbial activities influence on ecological balance.

350 Clinical Diagnosis 4 (2-6) Prereq Bio S 104; organic chemistry. Theory, techniques, and interpretation of urinalysis, clinical chemistry, and hematology.

406 Introduction to Immunology 2 Prereq Bio S 104, Chem 240. Immunology for science majors and students in professional programs. Credit not granted for both Micro 406 and 412.

412 Immunology 3 Prereq Micro 301; org chem. Principles of basic immunology. Credit not granted for both Micro 412 and 406. Credit not granted for both Micro 412 and 512.

413 [M] Immunology Laboratory 2 (0-6) Prereq Micro 412 or c//. Fundamental principles and techniques used in immunology.

414 General Virology 3 Prereq BC/BP 364; GenCB 301; organic chemistry. The biology of bacterial, animal, and plant viruses. Credit not granted for both Micro 414 and 514. Cooperative course taught by WSU, open to UI students (Bact 130).

415 [M] General Virology Laboratory 2 (0-6) Prereq Micro 414 or c//. Laboratory techniques concerning cultivation and characterization of viruses. Cooperative course taught by WSU, open to UI students (Bact 130).

416 Food and Applied Microbiology 2 Prereq Micro 301. Purpose for enumeration, detection and identification of microorganisms in food products; physical, chemical and environmental factors influencing growth and survival of foodborne pathogens; physiological and spoilage microorganisms in food and their control. Cooperative course taught by UI (FST 416), open to WSU students.

417 Food Microbiology Laboratory 2 (0-6) Prereq Micro 416 or c//. Methods of enumeration, detection, and identification of spoilage and pathogenic microorganisms in foods. Cooperative course taught jointly by WSU and UI (FST 417).

420 Epidemiology 3 Prereq junior standing. Study of diseases in human populations; concepts of etiology, disease rates, susceptibility and risk factors, screening for disease, and prevention. Cooperative course taught by WSU, open to UI students (Bact 420).

428 Basic and Applied Microbial Physiology 3 Prereq BC/BP 364, Micro 301. Basic microbial physiology and its relevance to the processes of applied microbiology. Credit not granted for both Micro 428 and 528.

431 Soil Microbial Ecology 3 Same as SoilS 431.

452 Environmental Microbiology 3 Prereq college-level biology, microbiology, organic chemistry. Microbial contamination and interactions between micro-organisms and the environment, methods and mechanisms of bioremediation. Credit not granted for both Micro 452 and 552.

462 Microbial Genetics 3 Prereq BC/BP 364 or GenCB 301; Micro 301. Genetics of bacteria, bacteriophages and plasmids; regulation of gene expression; genetic manipulation of micro-organisms.

464 Techniques in Molecular Biology 3 (1-6) Prereq BC/BP 482, GenCB 402, or Micro 301. Basic principles and techniques of gene manipulation.

489 Biotechnology for High School Teachers 3 (1-6) Prereq high school science teaching experience. Methodologies illustrating the use of microbes to implement laboratory exercises in biotechnology.

495 Internship in Microbiology V 2-4 May be repeated for credit; cumulative maximum 8 hours. Prereq Micro 301. Experience in work related to specific career interests. S, F grading.

496 Senior Project in Microbiology 1 Prereq senior Micro major. Laboratory research or library project; seminar presentation.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

512 Immunology 4 The immune system at the animal, cellular, and molecular levels. Credit not granted for both Micro 412 and 512. Cooperative course taught by WSU, open to UI students (Bact 512).

514 General Virology 3 Graduate-level counterpart of Micro 414; additional requirements. Credit not granted for both Micro 414 and 514.

528 Basic and Applied Microbial Physiology 3 Graduate-level counterpart of Micro 428; additional requirements. Credit not granted for both Micro 428 and 528.

529 Molecular Techniques in Microbiology 3 (1-6) Current molecular biology techniques applied to DNA and protein isolation and characterization: southern and western blots, PCR, PAGE, computer cloning. Cooperative course taught by WSU, open to UI students (Bact 529).

541 Seminar 1 May be repeated for credit. Literature reviews and research reports.

552 Environmental Microbiology 3 Graduate-level counterpart of Micro 452; additional requirements. Credit not granted for both Micro 452 and 552.

560 Molecular Genetics 3 Same as GenCB 560.

562 Advanced Pathogenic Mechanisms 3 Prereq by interview only. Detailed analysis of microbial virulence factors and host factors involved in infection and infectious disease. Cooperative course taught jointly by WSU and UI (MMBB 562).

565 Molecular Biology I 3 Same as BC/BP 565.

566 Molecular Biology II 3 Same as GenCB 566.

568 Microbial Transformation 3 Prereq BC/BP 364, Micro 428. Use of microbes in the biodegradation of wastes and bioprocessing to produce valuable chemical stocks. Cooperative course taught by UI (MMBB 568), open to WSU students.

570 Advanced Immunology 3 Prereq introductory course in immunology. Cellular and molecular regulation of the immune response. Cooperative course taught by WSU, open to UI students (VetSc 570).

580 Selected Topics in Microbiology 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Micro 428 and 528.

582 Advanced Topics in Microbiology V 1-3 May be repeated for credit.

590 Selected Topics in Immunology 1 May be repeated for credit; cumulative maximum 2 hours. Prereq course in immunology. Seminar series on advances in immunology.

592 Selected Topics in Virology 1 May be repeated for credit; Prereq Micro 414/514 or c//; by interview only. Selected topics in virology using the current literature.
Department of Military Science

Professor and Department Chair, Lieutenant C. H. Armstrong; Associate Professors, Captain S. Blanton, Captain J. Burick, Captain G. Reedy; Instructors, Sergeant First Class T. Cotton.

The Department of Military Science at WSU is designed to supplement a student's academic studies by motivating, educating, and training qualified students to serve as commissioned officers in all components of the U.S. Army. The military science academic, professional and technical education and training complement the educational programs at WSU. A copy of the student's birth certificate is required for participation in the ROTC program.

The military science curriculum comprises a two-year basic course (freshman and sophomore years), and a two-year advanced course (junior and senior years). The basic course is open to all WSU students. Enrollment into the advanced course is highly competitive and is offered only with the approval of the department chair. During the summer between the junior and senior years of military science, cadets attend ROTC Advanced Camp (six weeks at Fort Lewis, WA). It is a training/evaluation/leadership/practicum opportunity taught by ROTC faculty from across the country and includes cadets from across the United States.

At WSU, military science courses are academic in nature. The practical aspects of military education and training are taught in leadership labs and summer camps. Basic and advanced course students are required to participate in leadership labs which are conducted throughout the year. These events provide instruction in individual military skills and group leadership techniques. Practical leadership experience is also gained through these labs since they are organized and conducted by the cadets under faculty supervision.

In addition to the military science courses, in order to be commissioned into the U.S. Army, cadets are required to complete courses in mathematics, computer science, military history, human behavior, and written communication. Information as to specific courses which need to be completed is available in the department.

Advanced course cadets receive a monthly stipend of $150 per month during the school year to cover the additional costs associated with advanced course standing. Competitively awarded scholarships are available which, in addition to the monthly stipend, pay full tuition, enrollment fees and defray the costs of necessary books and supplies. High school students may apply for a four-year Army ROTC scholarship in the fall of their senior year; all students may apply for two- or three-year scholarships whether or not they are enrolled in the ROTC Program. Additionally, scholarships are available on a competitive basis for students desiring to earn a commission in the National Guard and Army Reserve, without a commitment to full-time active duty upon graduation. Upon successful completion of the advanced course and graduation from WSU, cadets selected for commissioning are commissioned as Reserve or Regular Army officers and serve in Army Reserve, National Guard, or active Army units. Cadets may also compete for active duty commissions in the Regular Army. Those who wish to seek advanced degrees may apply for a delay to active duty in order to complete their graduate studies before entering active service.

Description of Courses

Basic Course
Mil S
101 The United States Army 1 Role of the Army in contemporary society.
102 National and International Role of the Army 1 Role of the Army in today's international affairs.
110 Cougar Rangers I 1 Military adventure training, pioneering activities, military skills and small unit tactics. Field trip required.
111 Cougar Rangers II 1 Military adventure training, pioneering activities, military skills and small unit tactics. Field trip required.
201 Introduction to Leadership 2 Multidisciplinary approach to military leadership.
202 The Officer as a Professional 2 U.S. Army Officer Corps as a profession; the U. S. Army Officer as a professional.
205 Basic Summer Camp 1 Prereq junior standing. By interview only. Intensive orientation and internship in military training and skills held at an active Army post. Successful completion qualifies for Advanced ROTC. S, F grading.
206 Military Science Overview 5 Preparation for advanced military science program; map reading, tactics, leadership, U. S. military history, fundamentals of army duty.

Advanced Course
Mil S
301 Applied Leadership and Management 3 Troop leadership procedures emphasizing instruction in military professionalism and ethics; practical aspects of tactics and leadership practicum.
302 Small Unit Tactics and Military Leadership 3 Preparation, delivery, and critique of practical oral presentations; leadership of small units; offensive and defensive operations.
320 Advanced Summer Camp 6 Prereq Mil S 301, 302. By interview only. Intensive study and internship in military tactics, command and leadership; held at Fort Lewis, WA. S, F grading.
401 Advanced Military Leadership 3 Historical and legal basis of military justice; small unit management; contemporary professionalism and ethics.
402 Advanced Military Management and Practicum 3 Theory and practice of Army administration/management; staff planning and correspondence; pre-commission orientation; unit management/resources application.
499 Special Problems V 1–4 May be repeated for credit. S, F grading.

Molecular Biology Minor

Graduate training in molecular biology is performed under numerous life science graduate programs on campus. An undergraduate minor in molecular biology is available, jointly administered by the faculties of biochemistry/biophysics, genetics and cell biology, and microbiology. Students majoring in these three areas and possibly in other areas may satisfy the requirements for this minor. Requirements of 18–21 credit hours are as follows:

BC/BP 364
BC/BP 366, GenCB 402, or Micro 464
BC/BP 463, GenCB 502, or Micro 462
GenCB 301
GenCB 450
Micro 301

Further information can be obtained from the Department of Genetics and Cell Biology.

School of Music and Theatre Arts

The School of Music and Theatre Arts offers courses of study leading to the degrees of Bachelor of Music, Bachelor of Arts in Music, Bachelor of Arts in Theatre Arts and Drama, Master of Arts in Music, Master of Arts in Theatre Arts and Drama, and Master of Arts in the Teaching of Theatre Arts and Drama. Endorsement curricula offered in cooperation with College of Education provide certification for teachers of music or drama. Minors in music and drama are available as are many courses, performance opportunities, and other activities for students interested in music and theatre.

Music

Professor and Director of the School of Music and Theatre Arts, Erich J. Lear; Professors, B. Harbach, H. J. Schoeplin, G. Yasinskiy; Associate Professors, C. Argersinger, G. Berthiaume, D. Jarvis, L. K. Johnson, P. Kleine, C. J. von Busey, L. West; Assistant Professors, S. Chan, A. Mueller, D. Turnbull, J. Weck; Instructors, R. Logan, B. Novak, G. Plowman, J. Reid, P. Smith, A. Yasinskiy.

The Music Program is committed to a tradition of excellence in performance, teaching, and the study of theoretical, historical, and philosophical aspects of the musical arts. Its chief objectives are:
— to provide students with a foundation in the analysis and criticism of music and guide them toward acquiring discriminating judgment in a progressive musical environment;
— to train teachers of music who can be effective in contemporary society;
— to assist aspiring performers and composers to reach the highest potential of artistic capacity;
— to contribute toward a varied humanistic education within the university community.

As an integral part of the academic program, an active schedule of recitals and concerts by students, faculty, and guest artists is maintained. The Music Program is a fully accredited member of the National Association of Schools of Music.
Normal progress in all music degree curricula requires enrollment during the freshman year in 300-level performance studies. Such enrollment requires an audition which is best completed during the semester (usually spring) prior to the student's matriculating in the university. Students who do not audition early must do so during the first week of classes in the term. Students who do not qualify for 300-level performance studies as freshmen will usually require more semesters and credit hours of performance studies to complete a degree than listed in this schedule of studies. To certify as a major pursuing any degree in music, students must meet the following criteria:

Completion of 30 semester hours; cumulative g.p.a. of 2.0; completion of 10 hours with a cumulative g.p.a. of 2.0 and a grade of C or better in any of the following courses: Mus 151, 152, 161, 181, 182, 251, 252, 253, 254, 281; approval of the appropriate applied study area coordinator; [approval requires two semesters' study as specified by each area: Keyboard at 300 level with grade of C or better, Brass and Percussion at 300 level with grade of B- or better, Woodwinds at 300 level with grade of B- or better, and Voice at 200 level with grade of B- or better]; completion of application available from department. Students not passing the upper-division exam after the second attempt will be decertified as music majors.

In addition the College of Education requires 2.5 g.p.a. and C or better in each course listed for the major, minor and professional core of students certifying in any of the Bachelor of Music in Music Education curricula.

As indicated in the requirements listed under the various majors and options for the Bachelor of Music degree and the Bachelor of Arts degree in Music, each student must satisfactorily complete all music courses with a minimum 2.5 g.p.a. and a grade of C or better in each music course. Each student is required to pass the piano proficiency exam and the upper-division exam. Students must also complete the General Education Requirements plus those for the College of Liberal Arts.

BACHELOR OF MUSIC

This program offers majors for specialization in performance, composition and music education. At least 42 of the hours required for this degree must be 300-400-level courses.

The following curricula are designed to prepare students as professional musicians and teachers of music.

Students following option I, II, III, V are required to present an acceptable junior and senior recital in the major performance medium.

Students following any of the option IV endorsements are required to present an acceptable senior half recital in the major performance medium.

Students following any of the option IV endorsements must have a minimum g.p.a. of 2.5 in all of the following areas: cumulative g.p.a., Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students certifying as majors in any of the option IV endorsements must also certify as majors in the College of Education.

### Degree Program Requirements

### MAJOR IN PERFORMANCE

#### FIRST AND SECOND YEAR REQUIREMENTS

The first and second year requirements are common to the Brass, Percussion, Strings, Winds; Keyboard; Keyboard, with elective studies in Pedagogy; and Voice degree programs:

### Freshman Year

**First Semester**

- **Hours**
- **Engl 101 [W] (GER)** 3
- **Degree Program Course, if necessary** 1
- **Mus 251** 3
- **Mus 252** 1
- **Mus Ensemble** 1
- **Mus Private Lessons** 4
- **Science Elective** 1
- **Tier I Science [Q] (GER)** 3

**Second Semester**

- **Hours**
- **Biological Sciences [B] (GER)** 4
- **Degree Program Course, if necessary** 1
- **Mus 161** 3
- **Mus 253** 3
- **Mus 254** 1
- **Mus Ensemble** 1
- **Mus Private Lessons** 4

### Sophomore Year

**First Semester**

- **Hours**
- **Communication, [C,W] (GER)** 3
- **Degree Program Course, if necessary** 3
- **GenEd 110 [A] (GER)** 3
- **Mus 351** 3
- **Mus 352** 1
- **Mus Ensemble** 1
- **Mus Private Lessons** 4

**Second Semester**

- **Hours**
- **Degree Program Course, if necessary** 2 or 3
- **GenEd 111 [A] (GER)** 3
- **Math Proficiency [N] (GER)** 3
- **Mus 353** 3
- **Mus 354** 1
- **Mus Ensemble** 1
- **Mus Private Lessons** 4

### Junior Year

**First Semester**

- **Hours**
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)** 9
- **Mus Ensemble** 1
- **Mus Private Lessons** 4
- **Music Electives** 5

**Second Semester**

- **Hours**
- **Mus 482** 1
- **Mus Ensemble** 1
- **Mus Private Lessons** 4
- **Music Electives** 4
- **Tier III Capstone (GER)** 3
- **Electives** 3

- 1 Fall only
- 2 Spring only
- 3 Chosen from Mus 428-444

### Senior Year

**First Semester**

- **Hours**
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)** 9
- **Mus Ensemble** 1
- **Mus Private Lessons** 4
- **Music Electives** 5
- **Tier III Capstone (GER)** 3
- **Electives** 3

1 For Brass, Percussion, Strings, Winds, and Voice degree programs, take Mus 181 (Class piano credits not required for degree).
2 Fall only
3 Chosen from Mus 428-444
4 One four-credit Tier I Science may be substituted for both the three credit Tier I Science and the one credit Science Elective.
5 For Brass, Percussion, Strings, Winds, and Voice degree programs, take Mus 182 (Class piano credits not required for degree).
6 Spring only
7 For Brass, Percussion, Strings, Winds, and Keyboard, take a Social Science [S,K] (GER); for Keyboard Pedagogy, take Psych 105 [S] (GER); for Voice, take Mus 364.
8 For Brass, Percussion, Strings, Winds, and Keyboard, take Mus 281 (Class piano credits not required for degree) and secondary instrument or Mus 487; for Keyboard, take an Arts & Humanities [H,G] or Social Science [S,K] (GER); for Keyboard Pedagogy, take Mus 486; for Voice, take Mus 281 (Class piano credits not required for degree) and Mus 371 or 372.

### BRASS, PERCUSSION, STRINGS, WINDS PERFORMANCE DEGREE PROGRAM (OPTION III - 139 HOURS)

**要求 include:** Upper division exam; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; junior and senior recitals.

#### Junior Year

**First Semester**

- **Hours**
- **Arts & Humanities [H,G] (GER)** 3
- **Intercultural [I,G,K] (GER)** 3
- **Mus 360 [M]** 3
- **Mus 435** 1
- **Mus 455** 2
- **Mus Private Lessons** 4
- **Music Electives** 2
- **Complete Writing Portfolio**

**Second Semester**

- **Hours**
- **Mus 361 [M]** 3
- **Mus 435** 1
- **Mus 453** 2
- **Mus 465** 2
- **Mus 481** 1
- **Mus Private Lessons** 4
- **Physical Sciences [P] (GER)** 4

#### Senior Year

**First Semester**

- **Hours**
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)** 9
- **Mus Ensemble** 1
- **Mus Private Lessons** 4
- **Music Electives** 5
- **Tier III Capstone (GER)** 3
- **Electives** 3

1 Fall only
2 Spring only
3 Chosen from Mus 428-444

**KEYBOARD PERFORMANCE DEGREE PROGRAM (OPTION Ia - 140 HOURS)

**要求 include:** Accompany a junior, senior, or graduate recital; piano proficiency exam; upper-division exam; junior recital; senior recital; 2.5 average in all music courses; C or better in all music courses.

#### Junior Year

**First Semester**

- **Hours**
- **Arts & Humanities [H,G] (GER)** 3
- **Intercultural [I,G,K] (GER)** 3
- **Mus 360 [M]** 3
- **Mus 435** 1
- **Mus 455** 2
- **Mus Private Lessons** 4
- **Complete Writing Portfolio**

**Second Semester**

- **Hours**
- **Mus 361 [M]** 3
- **Mus 435** 1
- **Mus 453** 2
- **Mus 465** 2
- **Mus Private Lessons** 4

School of Music and Theatre Arts
## Senior Year

### First Semester
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)**: 6
- **Mus Ensemble¹, 3**: 1
- **Mus Private Lessons**: 4
- **Electives**: 5

### Second Semester
- **Mus Ensemble¹, 3**: 1
- **Mus Private Lessons**: 4
- **Music Electives**: 5
- **Tier III Capstone (GER)**: 3
- **Electives**: 5

### Junior Year

#### First Semester
- **Arts & Humanities [H,G] (GER)**: 3
- **Intercultural [I,G,K] (GER)**: 3
- **Mus 360 [M]**: 3
- **Mus 435**: 1
- **Mus 451¹**: 2
- **Mus 465**: 2
- **Mus Private Lessons**: 4
- **Complete Writing Portfolio**: 3

#### Second Semester
- **Mus 361 [M]**: 3
- **Mus 441**: 1
- **Mus 453²**: 2
- **Mus 481²**: 1
- **Mus 483²**: 2
- **Mus Private Lessons**: 4
- **Physical Sciences [P] (GER)**: 4

### Senior Year

#### First Semester
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)**: 6
- **EdPsy 301, or Psych 361 or 490**: 3
- **Mus 499 Pedagogy**: 1
- **Mus Ensemble¹, 4**: 1
- **Mus Private Lessons**: 4
- **Secondary Instrument**: 2

#### Second Semester
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)**: 3
- **Mus 486**: 2
- **Mus 499 Pedagogy**: 1
- **Mus Ensemble¹, 4**: 1
- **Mus Private Lessons**: 4
- **Secondary Instrument**: 2

### VOICE PERFORMANCE DEGREE PROGRAM (OPTION II - 139 HOURS)
- **FYDA**

Requirements include: Upper division exam; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; junior and senior recitals.

#### Junior Year

#### First Semester
- **Intercultural [I,G,K] (GER)**: 3
- **Mus 360 [M]**: 3
- **Mus 428**: 1
- **Mus 491¹**: 2
- **Mus Private Lessons**: 4
- **Physical Sciences [P] (GER)**: 4
- **Complete Writing Portfolio**: 3

#### Second Semester
- **Arts & Humanities [H,G] (GER)**: 3
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)**: 3
- **Mus 361 [M]**: 3
- **Mus 371 or 372²**: 3
- **Mus 453**: 1
- **Mus 481¹**: 2
- **Mus Private Lessons**: 4

### Sophomore Year

#### First Semester
- **Math Proficiency [N] (GER)**: 3
- **Mus 254**: 1
- **Mus 354**: 2
- **Mus 354¹**: 1
- **Mus Ensemble (Choral)**: 1
- **Mus Private Lessons**: 2
- **Music Electives**: 2

#### Second Semester
- **Arts & Humanities [H,G] (GER)**: 3
- **Biological Sciences [B] (GER)**: 4
- **Mus 256**: 1
- **Mus 353**: 1
- **Mus 281**: 1
- **Mus 352²**: 1
- **Mus Ensemble¹**: 1
- **Mus Private Lessons**: 2
- **Music Electives**: 4

### Junior Year

#### First Semester
- **Physical Sciences [P] (GER)**: 4
- **Mus 351**: 1
- **Mus 352**: 1
- **Mus 252**: 1
- **Mus 181**: 1
- **Mus 251**: 1
- **Mus 252**: 1
- **Mus Ensemble**: 1
- **Mus Private Lessons**: 2
- **Social Sciences [S,K] (GER)**: 3

#### Second Semester
- **Communication [C,W] (GER)**: 3
- **GenEd 111 [A] (GER)**: 3
- **Mus 161**: 1
- **Mus 182**: 1
- **Mus 253**: 1
- **Mus 254**: 1
- **Mus Ensemble¹**: 1
- **Mus Private Lessons**: 2

### Major in Composition

#### Composition Degree Program (OPTION V - 142 HOURS)
- **FYDA**

Requirements include: Upper division exam; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; junior and senior recitals.
MAJOR IN MUSIC EDUCATION

MUSIC EDUCATION FIRST AND SECOND YEAR REQUIREMENTS

The first- and second-year requirements are common to the Broad Endorsement, Choral/General Endorsement, and Instrumental/General degree programs. Consult the department for nine-semester course plans.

Freshman Year

First Semester
- Arts & Humanities [H,G] (GER) 3
- Engl 101 [W] (GER) 3
- Mus 181 1
- Mus 251 1
- Mus Ensemble 1
- Mus Private Lessons 2
- Psych 105 [S] (GER) 3

Second Semester
- Engl 201 [W] (GER) 3
- Mus 161 1
- Mus 253 1
- Mus Ensemble 1
- Mus Private Lessons 2
- Science Elective 1
- SpCom 102 [C] (GER) 3
- Tier I Science [Q] (GER) 3

Sophomore Year

First Semester
- Degree Program Course, if necessary 6
- GenEd 110 [A] (GER) 3
- Mus 182 1
- Mus 351 1
- Mus 352 1
- Mus 491 1
- Mus Ensemble 1
- Mus Private Lessons 2
- Physical Sciences [P] (GER) 4
- T & L 300 1

Second Semester
- GenEd 111 [A] (GER) 3
- Mus 281 1
- Mus 353 1
- Mus 354 1
- Mus 481 1
- Mus 490 1
- Mus Ensemble 3
- Mus Private Lessons 2
- T & L 301 3

- 1 Class piano credits not required for degree.
- 2 Fall only.
- 3 Chosen from Mus 428-444.
- 4 Spring only.
- 5 One 4-credit Tier I Science may be substituted for both the 3-credit Tier I Science and the 1-credit Science Elective.
- 6 Students in the Broad Endorsement and the Instrumental/General, take Math [N] (GER) this semester.

BROAD ENDOREMENT DEGREE PROGRAM (OPTION IVa - 158 HOURS)

Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; 7 credits (minimum 4 vocal) ensemble; upper-division exam, piano proficiency; solo half-recital.

Junior Year

First Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- EdPsych 402 2
- Math [N] (GER) 3
- Mus 361 [M] 3
- Mus 489 2
- Mus Ensemble 1
- Mus Private Lessons 2
- T & L 303 3
- T & L 317/18 2
- T & L 328 or Mus 455/453 2
- Complete Writing Portfolio

Second Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Biological Sciences [B] (GER) 4
- Intercultural [I,G,K] (GER) 3
- Mus 428 1
- T & L 404 3
- Tier III Capstone (GER) 3

Senior Year

First Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Biological Sciences [B] (GER) 4
- Intercultural [I,G,K] (GER) 3
- Mus 435 (instrumentalists) or 428 (vocalists) 1
- T & L 404 3
- Tier III Capstone (GER) 3

Second Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Biological Sciences [B] (GER) 4
- Intercultural [I,G,K] (GER) 3
- Mus 435 (instrumentalists) or 428 (vocalists) 1
- T & L 404 3
- Tier III Capstone (GER) 3

Instrumental/General Endorsement Degree Program (Option IVb - 154 HOURS)

Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; 7 credits (minimum 4 instrumental) ensemble; upper-division exam, piano proficiency; solo half-recital.
### BACHELOR OF ARTS IN MUSIC (123 HOURS) ☑️FYDA

This four-year program is designed to meet the needs of students wishing to obtain a broad liberal arts background with a major in music. Of the total 120 credits required for a degree in this program, 73 credits are devoted to courses outside music, including the General Education Requirements. Non-music courses other than those used for the GERs must be at the 200-level or above. 40 credits of the 120 required for the degree must be in 300-400-level. Music credits beyond the required 47 credits in music add to the number of credits required in the degree. Other requirements include: C or better in all music courses; 2.5 music average; upper-division exam; piano proficiency exam or grade of C or better in Mus 182.

### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>Mus 1811</td>
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<td>Mus 2512</td>
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</tr>
<tr>
<td>Mus 2522</td>
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<tr>
<td>Mus Ensemble2</td>
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<tr>
<td>Mus Private Lessons</td>
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<td>Tier I Science [Q] (GER)2</td>
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### Sophomore Year

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<th>First Semester</th>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Mus 1611</td>
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<td>Mus 2533</td>
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<tr>
<td>Communication [C,W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
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<tr>
<td>Mus 3511</td>
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<td>Mus 3521</td>
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<td>Mus Ensemble1</td>
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<td>Mus Private Lessons</td>
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### Junior Year

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<th>First Semester</th>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>T &amp; L 404</td>
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<td>Tier III Capstone (GER)</td>
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<table>
<thead>
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<th>Second Semester</th>
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<tr>
<td>Mus 497</td>
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<tr>
<td>T &amp; L 415</td>
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### Senior Year

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<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>200-400-level Non-Music Electives</td>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>Mus 360 [M]</td>
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<td>Mus Ensemble1</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<tr>
<th>Second Semester</th>
<th>Hours</th>
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<td>200-400-level Non-Music Elective</td>
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<td>Mus 361 [M]</td>
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<td>Mus Ensemble1</td>
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### Music Minor and Supporting Teaching Endorsements

A 22-hour music minor course of study is available. For details contact the Music Program. Also available are supporting teaching endorsements in music for students whose primary teaching endorsements are in other majors.

### Theatre Arts and Drama

#### Associate Professor and Theatre Arts and Drama Coordinator, G. R. Caldwell; Professor, L. H. Harris; Associate Professors, T. Converse, L. Furman, W. H. Shephard, R. G. Slabaugh.

The Theatre Arts and Drama Program provides students with a foundation of studies in production, history and analysis of the theatre arts within a liberal arts context. As an integral part of the academic program, WSU Theatre presents a regular schedule of productions by faculty and students. The undergraduate curriculum offers a well-rounded background in all of the major disciplines of theatre.

### Degree Program Requirements

Students seeking the Bachelor of Arts in Theatre Arts and Drama must complete the General Education Requirements plus those for the College of Liberal Arts. Students pursuing a teaching endorsement option must have a minimum g.p.a. of 2.5 in all of the following areas: cumulative g.p.a., Professional Education Core with a C or better in each course, and academic major with a C or better in each course (and minor if any). Students certifying as majors in teacher endorsement curricula must also certify as majors in the College of Education.

### THEATRE ARTS AND DRAMA DEGREE PROGRAM (120 HOURS) ☑️FYDA

#### Freshman Year

<table>
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<tr>
<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Drama 260</td>
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<td>Engl 101 [W] (GER)</td>
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<td>Science Elective1</td>
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<tr>
<td>Tier I Science [Q] (GER)2</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Drama 163</td>
<td>3</td>
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<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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### Sophomore Year

<table>
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<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Drama 296 or 496</td>
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<tr>
<td>Drama 360 or 463</td>
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<tr>
<td>Drama 494</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Elective</td>
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</table>
Performance Studies in Music

Description of Courses

Performance studies are offered on several levels to meet the needs of music majors as well as those of students from the general university community. There are no additional fees or tuition charges for either performance studies or the use of practice facilities. 100-level performance studies in selected instruments are open to any student without audition through class instruction. The 200-level denotes group or private instruction for advanced non-music majors by special permission of the Director (audition required) or study in a secondary performance medium by music majors.

Individual instruction in performance studies is offered at the 300- and 400-level for music majors and, by special permission of the Director, to advanced non-music majors who meet all requirements for music majors as listed below. All students enrolled in 200- through 400-level performance instruction are required to attend weekly convocation (student recital), attend recitals as required, participate in at least one approved music department ensemble, and take jury examinations at the end of each term. Students enrolled in 300- and 400-level performance study must enroll in a music theory or music history course each semester until music core requirements have been completed. No student will be permitted to enroll in 300-400-level performance studies unless all of these criteria are met. In addition, each music major must pass the piano proficiency exam, as a precondition to 400-level standing. Performance studies may not be taken on a pass, fail basis or audited. Enrollment in performance studies by university employees under the fee waiver policy is by permission of the Director.

Nonmajor and Secondary Performance Studies

Lower-division courses and Mus 319 available for 2 credits only and may be repeated for credit. Mus 319 is designed for 300-400-level study on secondary instrument or voice by music majors.

Class Instruction

Mus
102 Piano
103 Voice
120 Guitar

Studio Instruction

Mus
201 Organ
202 Piano
203 Voice
204 Horn
205 Trumpet
206 Trombone
207 Baritone
208 Tuba
209 Percussion
210 Violin
211 Viola
212 Violoncello
213 Contrabass
214 Flute
215 Oboe
216 Clarinet
217 Bassoon
218 Saxophone
220 Guitar

319 Secondary Performance Study 2 Prereq music major. Instruction on instruments or voice other than major performing medium.

Major Performance Studies

Admission to 300 level is by audition only. Students progress from the 300 level to the 400 level by upper-division examination before a representative committee of the faculty. This evaluation will include all aspects of the student’s program, including performance, literature, and core music requirements.

The 500 level represents credit given for graduate study and is limited to enrolled graduate students pursuing a master’s degree. Credit for the 300, 400 and 500 levels is granted on the basis of 2 credits for one half-hour lesson per week and 4 credits for two half-hour lessons per week. All major performance studies may be repeated for credit.

Mus
301, 401, 501 Organ
302, 402, 502 Piano
303, 403, 503 Voice
304, 404, 504 French Horn
305, 405, 505 Trumpet
306, 406, 506 Trombone
307, 407, 507 Baritone
308, 408, 508 Tuba
309, 409, 509 Percussion
310, 410, 510 Violin
311, 411, 511 Viola
312, 412, 512 Violoncello
313, 413, 513 Contrabass
314, 414, 514 Flute
315, 415, 515 Oboe
316, 416, 516 Clarinet
317, 417, 517 Bassoon
318, 418, 518 Saxophone
320, 420, 520 Guitar

519 Secondary Performance Study 1 or 2 May be repeated for credit, cumulative maximum 6 hours. Prereq bachelor’s degree in music. Instruction on instruments or voice other than major performing medium.

Music Performing Groups

The lab-lecture ratios of these courses reflect the number of rehearsal hours per week (for example, 0-4 equals 4 hours of rehearsal weekly). All courses (except Mus 430) in this section are repeatable for credit up to a maximum of 8 credits. The Music Program limits to 4 the number of music performing group credits that may be counted toward the 30 credit hour minimum for the Master of Arts in Music. All 500-level courses in this section are offered conjointly with 400-level courses by the same name. The usual prohibition against credit for both 400-500-level credit for joint courses does not apply to music performing groups.

Mus
428 Opera Workshop 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performance may be required.
429 Crimson Company Quartet 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. SATB. All styles of popular music; public performances required.
430 Crimson Company Show Choir 2 (0-8) May be repeated for credit; cumulative maximum 16 hours. By audition only. Popular music performances with choreography. Public performances required.
431 Concert Choir 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester.
432 University Singers 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performance may be required.
433 Vocal Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performance may be required.
434 Symphony Orchestra 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Orchestral literature and public performance each semester.

435 Chamber Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performance may be required.

436 Symphonic Band 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances.

437 Wind Symphony 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester.

438 Jazz-Lab Band 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester.

441 Accompanying 1 (0-4) May be repeated for credit; cumulative maximum 8 hours.

444 Marching Band/Varsity Band 1 May be repeated for credit; cumulative maximum 8 hours. By audition only.

528 Opera Workshop 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 428; additional requirements.

533 Vocal Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 433; additional requirements.

534 Symphony Orchestra 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 434; additional requirements.

535 Chamber Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 435; additional requirements.

537 Wind Symphony 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 437; additional requirements.

538 Jazz-Lab Band 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 438; additional requirements.

541 Accompanying 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 441; additional requirements.

Mus

151 Music Fundamentals I 3 Notation and performance of music fundamentals: pitch, rhythm, scales, key signatures, and intervals.

152 Music Fundamentals II 3 Notation and performance of music fundamentals: melody, rhythm, scales, intervals, key signatures, triads; preparatory for Mus 251.

153 [H] Musical Style in Composition 3 Introduction to musical style in composition, history, and analysis including theory fundamentals, history survey, and beginning composition.

181 Class Piano I 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. For majors, minors, and elem educ majors only. By audition only. Pedal, sightreading, transposition, playing by ear, chord progressions and melody harmonization.

182 Class Piano II 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. By audition only. Continuation of Mus 181. Scales, arpeggios, blocked and broken chords; repertoire to complement individual skills and theoretical knowledge.

251 Materials and Structures of Music I 3 By examination. Overtones, melody, rhythm, intervals, tonality, modality, penta-scales, two-voiced counterpoint, analytical composition.

252 Applied Theory I 1 (0-3) By examination. Ear training, conducting, rhythmic reading, sight singing, keyboard, dictation.

253 Materials and Structures of Music II 3 Prereq Mus 251, 252. Writing, analysis of three- and four-voiced homophonic and contrapuntal music, diatonic emphasis, seventh chords, modulation.

254 Applied Theory II 1 (0-3) Prereq in Mus 253. Ear training, sight singing, keyboard.

256 Seminar in Composition I 1 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 254. By interview only. Original writings in small forms.

257 Jazz Improvisation 1 May be repeated for credit; cumulative maximum 3 hours. Melodic jazz improvisation.

261 Class Piano III 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq Mus 182. By audition only. Principles, functional keyboard.

351 Materials and Structures of Music III 3 Prereq Mus 253, 254. Vertical, linear and formal relationships of chromatic music; writing, analysis, coordinated with aural study.

352 Applied Theory III 1 (0-3) Prereq Mus 254. Continued musical development in ear training, sight singing, applied theory, keyboard dictation.

353 Materials and Structures of Music IV 3 Prereq Mus 351. Vertical, linear and formal relationships of 20th century music; writing, analysis, listening.

354 Applied Theory IV 1 (0-3) Prereq Mus 352. Continued development in ear training, sight singing, keyboard and dictation, emphasizing 20th century music.

355 Seminar in Jazz Arranging/Composition 2 Arranging and composing for instrumental jazz ensembles.

451 Seminar in Counterpoint 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 353. Contrapuntal techniques of the 16th and 18th century with original stylistic writing.

452 Electronic Music 2 (1-3) Prereq Mus 353. Introduction to computer-controlled digital, analog, and sampling synthesis; topics include sequencing, waveform editing, and creative projects.

453 Form and Analysis 2 Prereq Mus 353. Organization of musical works according to the relationships in sectional divisions, thematic divisions, and tonal bases.

455 Seminar in Instrumentation 2 May be repeated for credit. Prereq Mus 352. Scoring for various instrumental combinations.

456 Seminar in Advanced Composition V 1-3 May be repeated for credit. Prereq upper-level composition review. Original writing in small and large forms (traditional and experimental).

500 Seminar in Analysis 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 453 or c//. Required of all graduate students. Applications of analytical techniques to develop a basis for musical understanding and interpretation.

553 Seminar in Music Theory 2 May be repeated for credit; cumulative maximum 4 hours.

556 Graduate Seminar in Advanced Composition V 2 (1-2) or 3 (1-4) May be repeated for credit; cumulative maximum 10 hours. Prereq by interview only. The creation of works for either traditional acoustic ensembles or electro-acoustic media.

History and Literature

Mus

160 [H] Survey of Music Literature 3 Exploration of predominantly western music through demonstrations, performances, lectures, concerts, and discussions.

161 Introduction to Critical Studies in Music 3 Prereq Mus 152, 251, or c//. Historical styles of music through analytical listening, score examination and source materials.

163 [G] World Music 3 Exploration of music from a global perspective through demonstrations, performances, lectures and discussion.


362 [H] History of Jazz 3 History of jazz in chronological sequence from early Dixieland to jazz-rock combinations of 1980s; stylistic and improvisational developments.

363 [G] Women of Note 3 Survey of the world’s history of women in music in their respective social and political contexts.

364 [H] Musical Theatre 3 Survey of musical theatre from Vienna to Broadway, lyric drama from Mozart to the present.

369 Topics Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.

465 Seminar in Major Performance Literature 2 May be repeated for credit; cumulative maximum 6 hours. Prereq Mus 351 or c//. Survey/performance of solo and chamber literature for voice, keyboard, strings, winds, brass, percussion.

466 Seminar in Band Literature and Performance 1 May be repeated for credit; cumulative maximum 4 hours. Survey and analysis of recently published literature for use in instrumental music programs of the public schools.

560 Introduction to Graduate Studies in Music 2 Required of all graduate students in Mus. Basic bibliographic and research techniques; written presentations related to area of emphasis.

562 Symphonic Literature 2 Symphony orchestra and symphonic form from its beginning to modern times studied from the score.

566 Seminar in Music History 2 May be repeated for credit; cumulative maximum 6 hours. Prereq Mus 361. Various historic periods and composers.

Music Education, Pedagogy, and Conducting

Mus

371 Diction for Singers I 2 Italian and English; International Phonetic Alphabet; fundamental diction principles, applied to each language and oriented to needs of the singer.

372 Diction for Singers II 2 French and German; International Phonetic Alphabet; fundamental diction principles, applied to each language and oriented to needs of the singer.

388 Music for the Classroom Teacher 2 For elementary education majors. Prereq Mus 153 or satisfactory score on music fundamentals test administered by music faculty; admission to Teacher Certification Program. Singing, movement, listening and instrumental methods and resources for K-8 grades.


481 Fundamentals of Conducting 1 (0-3) Prereq Mus 254. Basic techniques, patterns, preparations and releases; musical styles and score reading for beginning conductors.

482 Instrumental Conducting 1 (0-3) Prereq Mus 481. Score preparation of orchestra and band literature; transpositions; clefs; rehearsal techniques for instrumental ensembles.

483 Choral Conducting 1 (0-3) Prereq Mus 481. Conducting choral and vocal jazz ensembles.


487 String Techniques 2 (0-6) Prereq Mus 490. String techniques, materials and methods for music education majors.

488 Choral Methods and Materials I 2 (0-6) Prereq Mus 490. Preparation in the administration of choral programs from auditions to the selection and rehearsal of choral literature. Credit not granted for both Mus 488 and 588.

489 Choral Methods and Materials II 2 Prereq Mus 490. Development of skills in choral arranging, curriculum construction, research, and job placement. Credit not granted for both Mus 489 and 589.

490 General Music Material/Methods 4 (3-2) Prereq Mus 491. Materials and methods for general music education majors; multiculturalism, collaboration, developmental curriculum and research issues; addressing national standards; observations. Credit not granted for both Mus 490 and 590.

491 Voice Pedagogy 2 (1-3) Pedagogy methods course in voice; anatomy of the singing process; methodology of teaching voices in various learning and teaching styles.

492 Wind and Percussion Techniques I 2 (0-6) Prereq Mus 481. Brass, woodwind, and percussion techniques for music education majors.

493 Wind and Percussion Techniques II 2 (0-6) Prereq Mus 493. Brass, woodwind and percussion techniques; elementary instrument conducting for music education majors.

494 Directed Student Teaching in Music 4 Prereq maintain 2.5 g.p.a. in primary, supporting, and professional education core courses; completion of all required courses. By interview only. Supervised teaching in public schools (full day, full semester), including a two-hour weekly seminar reflecting on effective teaching. S, F grading.

575 Advanced Conducting 2 or 3 May be repeated for credit. Prereq Mus 482. Rehearsing orchestras, bands, and choruses. Public performance may be required.

586 Seminar in Piano Pedagogy 2 Graduate-level counterpart of Mus 486; additional requirements. Credit not granted for both Mus 486 and 586.

588 Choral Methods and Materials I 2 (0-6) Graduate-level counterpart of Mus 488; additional requirements. Credit not granted for both Mus 488 and 588.

589 Choral Methods and Materials II 2 Graduate-level counterpart of Mus 489; additional requirements. Credit not granted for both Mus 489 and 589.

590 General Music/Materials/Methods 4 Graduate-level counterpart of Mus 490; additional requirements. Credit not granted for both Mus 490 and 590.

Problems, Research, Recitals, and Thesis

Mus

496 Topics in Music V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq permission of program coordinator. Advanced seminar with required projects in music history, literature, pedagogy, theory, composition or performance.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

522 Graduate Recital 2 May be repeated for credit; cumulative maximum 4 hours. Private screening and public performance as required within each performance emphasis.

596 Topics for Music V 1-4 Varying subjects offered at graduate level.

597 Topics for Music V 1-4 Varying subjects offered at graduate level.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

701 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Description of Courses

Theatre Arts and Drama

Drama

145 [G] Contemporary World Theatre 3 Examination of contemporary theatrical works illustrating the clash which occurs when people of one culture live in another.

150 Film History 3 Survey of world cinema throughout century; emphasis on cultural and historical conditions that influenced development of specific genres and practitioners.

160 [H] Introduction to Theatre 3 Drama as prepared and presented for cinema, television, and stage.

163 Beginning Stagecraft 3 (2-3) Basic techniques of scenery construction and painting in the performing arts; practical application with WSU theatre productions.

260 Acting I 3 (2-3) Creative process of acting; psychophysical awareness, group improvisation, and work with the partner.

264 Stage Makeup 2 (0-6) Basic techniques in the design and execution of makeup for the stage and television.

294 Stage Speech 2 (0-6) May be repeated for credit; cumulative maximum 4 hours. Techniques and exercises for development of the actor’s voice for the stage: voice production, articulation, and application.

296 Practical Theatre V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 12 hours. Practical projects in theatre production, scenery, lights, sound, box office and publicity for nonmajors.

360 Acting II 3 (0-6) Prereq Drama 260. By interview only. Intensive work in textual analysis and character development in scenes and dramatic monologues.

365 Play Directing I 3 (0-6) Prereq Drama 260, 362. Theories of directing: principles of composition, blocking, casting, organization, and rehearsal; scene rehearsals and presentation.

367 Script Analysis 3 For directors, designers, performers. Exploration of various methods available for analyzing stage and film scripts. E-mail and Web access required.

368 Lighting for the Theatre 3 (2-3) Design and execution of lighting for the performing arts; instruments, control systems, principles of electricity, optics and color; required practicum.

456 [H] [M] Theatre History I: Beginnings to 1700 3 Development of theatre and drama from its beginning to 1700; major trends, plays, playwrights, actors, architecture, scenery, and costumes.

458 [H] [M] Theatre History II: 1700 to 1900 3 Development of theatre and drama from approximately 1700 to 1900; major developments in theatre arts and dramatic literature.

368 Visual Communication in Theatre, Film and Television 3 Analysis of the visual aspects of theatre, film and television applying research in perceptual psychology.

402 Production Analysis 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Analysis and comparison of theatre productions through discussion and written evaluation. Credit not granted for both Drama 402 and 502.

418 Topics—Study Abroad 3

419 Topics—Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.

450 Advanced Techniques of Acting 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq Drama 360. By interview only. Preparation for performance and individual character study for the advanced student of acting.

460 Play Production with Nonprofessionals 3 Acting, directing, design, stage management, and front-of-the-house organization for producers of amateur theatre. Suitable for high school teachers.

461 Play Directing II 3 (0-6) Prereq Drama 361, 362. Continuation of Drama 361. Credit not granted for both Drama 461 and 561.
463 Seminar in Theatre Design 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Visual elements in the performing arts; appropriate for designers, directors, performers; individual drawing skills are taken into account.

464 Creative Drama 3 Philosophy and techniques of informal drama; practical experience integrated into the curriculum; emphasis on application to educational setting. Cooperative course taught by WSU, open to UI students (ThA 381).

467 Topics in Drama 3 May be repeated for credit; cumulative maximum 6 hours. Individualized study and discussion of drama and performance theory from different historical eras and social contexts.

468 [M] Theatre for Children and Youth 3 Theories, dramatic literature and production demands of theatre for children and youth.

470 Theory and Practice of Puppetry Arts 1 or 2 (1-2) The puppet as a tool for educators, artists, and therapists. Credit not granted for both Drama 470 and 570.

471 Applied Puppetry Arts 2 (1-3) Prereq c// in Drama 470 or 570. Applications of puppetry arts theory to specific emphases: production, education, etc. Credit not granted for both Drama 471 and 571.

472 Drama Therapy 3 Prereq current knowledge in psychology/counseling theory. Balanced theoretical and experiential approach toward understanding therapeutic applications of drama and theatre. Credit not granted for both Drama 472 and 572.

480 Playwriting 3 Prereq Engl 351. Practical experience in the creative process of playwriting.

490 Internship in Professional Theatre V 2-15 Prereq Drama 163, 264; 360 or 361; 362; 365 or 366. Off-campus experience with Seattle area professional theatres in all aspects of production excluding performance. S, F grading.

494 Acting: Rehearsal and Performance V 1-4 May be repeated for credit; cumulative maximum 6 hours. Seminar in various periods, movements, and phases of drama.

496 Theatre Practicum 3 Graduate-level counterpart of Drama 472; additional requirements. Credit not granted for both Drama 472 and 572.

497 Drama Therapy 3 Graduate-level counterpart of Drama 472; additional requirements. Credit not granted for both Drama 472 and 572.

498 Repertory Theatre 3 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. By interview only. Practical application of acting techniques during the production of plays.

499 Theatre Practicum 2 (0-4) May be repeated for credit; cumulative maximum 12 hours. Advanced projects in scenery and properties; costumes, lights, sound, box office and publicity, for theatre majors.

500 Research Methods 3 Theory, methods, and practice of graduate-level research.

502 Production Analysis 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of Drama 402; additional requirements. Credit not granted for both Drama 402 and 502.

504 Instructional Practicum 1 May be repeated for credit; cumulative maximum 4 hours. Instruction and guidance in teaching theatre arts and drama. S, F grading.

514 History of the Theatre I 3 Major developments of all aspects of theatre arts from preliterate times to 1650.

524 History of the Theatre II 3 Major developments of all aspects of theatre arts from 1650 to 1800.

561 Play Directing II 3 (0-6) Graduate-level counterpart of Drama 461; additional requirements. Credit not granted for both Drama 461 and 561.

565 Seminar in Drama 3 May be repeated for credit; cumulative maximum 6 hours. Seminar in various periods, movements, and phases of drama.

570 Theory and Practice of Puppetry Arts 1 or 2 (1-2) Graduate-level counterpart of Drama 470; additional requirements. Credit not granted for both Drama 470 and 570.

571 Applied Puppetry Arts 2 (1-3) Graduate-level counterpart of Drama 471; additional requirements. Credit not granted for both Drama 471 and 571.

572 Drama Therapy 3 Graduate-level counterpart of Drama 472; additional requirements. Credit not granted for both Drama 472 and 572.

590 Graduate Internship in Professional Theatre V 2-15 Prereq Drama 501; completion of one academic year of master’s level course work in Theatre Arts and Drama at WSU. Internship position at upper levels of administration or production that requires expertise in specific area; theories/practical application. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

**Department of Natural Resource Sciences**


Natural resources are the basis for much of the economic activity in the state of Washington and in the world. Highly trained and motivated resource managers and natural resource scientists are needed to meet today’s and tomorrow’s demands for the multiple products and services supplied by the world’s natural resources. The objectives of the Department of Natural Resource Sciences are to prepare students for careers in forestry, range, wildlife, and wildland recreation professional areas with a holistic perspective on resource management and an ability to conduct research in natural resource sciences that will increase the basic knowledge and productivity of the resources while maintaining or improving the aesthetic qualities.

Within the undergraduate program, students can choose to concentrate on either natural resource management or natural resource sciences. Graduates of the department are employed by all the major public and private land management and wildlife organizations in the United States. They work as foresters, range conservationists, wildlife biologists, park managers, information specialists, game managers, consultants, researchers, and in a variety of roles in developing countries.

At the graduate level, MS and PhD programs provide students not only with an increased knowledge of the scientific basis of their profession but also with a more complete understanding of the holistic nature of successful natural resource management and science. Graduate-level students work with their academic committees in the development of academic programs and selection of research topics. Student chapters of professional societies (Society of American Foresters, Society for Range Management, and The Wildlife Society) provide additional opportunities for students to interact with the faculty and other professionals. Faculty contacts with many of the employing organizations and interaction with Career Services on campus help students obtain summer and permanent employment as well as internships and cooperative education opportunities in their chosen field.

Facilities such as the department’s undergraduate project laboratory, graduate student and faculty computer laboratory, the ecophysiology laboratory, bear research laboratory, large animal holding complex, and the greenhouses at the Steffen Center complex, the Hudson Biological Reserve at Smokey Hill, the Owney Herbarium, and the 12,000-acre Colocolum multiple-use research area provide students with access to the facilities and technologies needed to develop competence in their chosen professions.

**Degree Program Requirements**

All letter-graded courses specifically required for each degree program must be taken for letter grade (i.e., not pass, fail). This applies to all students in Natural Resource Sciences major and minor/opinion programs. All degree programs incorporate the suggested Ecology of the Planet area of coherence.

**Bachelor of Science in Natural Resource Management**

Students pursuing the BS in Natural Resource Management must major in one (or more) of four areas: forestry, range, wildlife, and wildland recreation. All majors share a set of basic science requirements and General Education Requirements and a core of natural resource courses. The natural resource core is composed of a broad spectrum of courses designed to expose students to a variety of natural resource disciplines, concepts and philosophies. In addition, each major has a specialized curriculum designed to meet the requirements of the appropriate professional society or a specific objective set by the department’s faculty. Forestry, range and wildland recreation also include options which enable students to further specialize their education.

**FORESTRY MAJOR**

The forestry major is designed to provide students with the educational basis for successfully pursuing a professional career in forestry. This program is fully accredited by the Society of American Foresters. Each forestry student, in addition to completing the first year requirements, selects a professional...
option. The forestry options include business management, directed studies, forestry management, and wildlife habitat. The management option provides a student with an understanding of the underlying principles and techniques used in forest management. The forest business option (with business minor) provides a student with a basic understanding of business and forestry needed in the business aspects of forestry in the public and private sectors. The wildlife habitat option provides organizations with forestry professionals sensitive to the needs of wildlife and able to bridge the gap between the traditional forester and the wildlife biologist. The directed studies option provides a student with the opportunity to develop a professional program that will meet individual career goals. Students completing the forest management option meet the qualifications of the U.S. Office of Personnel Management for forester. With careful selection of courses students in the wildlife habitat option will meet the federal qualifications for wildlife biologist.

### FIRST AND SECOND YEAR REQUIREMENTS

The first two years requirements are common to all forestry degree programs:

#### Freshman Year

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<tr>
<th>First Semester</th>
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<tr>
<td>Bio S 103 [B] (GER)</td>
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<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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#### Second Semester

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<td>Genl 102 [P] (GER)</td>
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<td>Stat 212 [N] (GER)</td>
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#### Sophomore Year

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<td>NATRS 313</td>
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<td>NATRS 374</td>
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<sup>1</sup>For the Business Management and Wildlife Habitat, take H D 205 as well during this semester.

<sup>2</sup>For the Business Management, Directed Studies, and Wildlife Habitat, take NATRS 312 as well during this semester.

<sup>3</sup>For the Business Management, take Econ 101.

<sup>4</sup>For the Business Management, choose from Acctg 230, B Law 210, Dec S 215, Dec S 340. For Directed Studies and Forestry Management, take H D 205. For Wildlife Habitat, take NATRS 280.

### BUSINESS MANAGEMENT DEGREE PROGRAM (141 HOURS)

#### Junior Year

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Year 3, Summer Session: NATRS 491 2

#### Senior Year

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Year 3, Summer Session: NATRS 491 2

### DIRECTED STUDIES DEGREE PROGRAM (140 HOURS)

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Year 3, Summer Session: NATRS 491 2

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Year 3, Summer Session: NATRS 491 2

### FORESTRY MANAGEMENT DEGREE PROGRAM (138 HOURS)

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Year 3, Summer Session: NATRS 491 2

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1 NATRS 480 offered spring semester only.

2 Both required, alternating years.

3 As approved by department, 12 additional credits required, 9 at the 300-400-level.

4 One from: Math 140, 171, 201, 202; Stat 401, 412, 422.
### WILDLIFE HABITAT DEGREE PROGRAM (133 HOURS) FYDA

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#### Second Semester

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#### Junior Year

**First Semester**

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**Year 3, Summer Session:** NA TRS 491 | 2

#### Sophomore Year

**First Semester**

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<td>NA TRS 357 or 430&lt;sup&gt;1&lt;/sup&gt;</td>
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<tr>
<td>NA TRS 418</td>
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#### Directed Studies and Wildlife Habitat Degree Programs (136 Hours) FYDA

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<tbody>
<tr>
<td>A S 101 or NA TRS 351</td>
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<tr>
<td>Math Elective&lt;sup&gt;6&lt;/sup&gt;</td>
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<tr>
<td>NA TRS 302 [M]</td>
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<td>NA TRS 450 [M]</td>
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<tr>
<td>NA TRS 452 or 453&lt;sup&gt;3&lt;/sup&gt;</td>
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<tr>
<td>NA TRS 460</td>
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<td>NA TRS 480</td>
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<td>Degree Program Course&lt;sup&gt;4&lt;/sup&gt;</td>
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#### Wildlife Management Major (125 Hours) FYDA

The wildlife management major provides students with a basic background in the sciences plus additional interdisciplinary courses emphasizing the management aspects of wildlife science. Students completing the management major in wildlife are employed by federal and state organizations such as US Fish and Wildlife Service, US Forest Service, National Park Service, and Washington Department of Wildlife, as well as nonprofit and private organizations. The core requirements plus the electives in wildlife management allow majors to meet the U.S. Office for Personnel Management requirements for wildlife biologist, wildlife refuge manager, general biologist, and zoologist. Through judicious use of electives a student can also meet additional civil service requirements for fish biologist, range conservationist, and soil scientist. Wildlife students can individualize and often enhance their professional development by minoring in other subjects such as communications, computer science, and other natural resource fields (forestry, range or wildlife recreation). This course of study incorporates the suggested Ecology of the Planet area of coherence.

#### Freshman Year

**First Semester**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Bio S 103 [B] (GER)</td>
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<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
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<tr>
<td>Eng 101 [W] (GER)</td>
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<tr>
<td>Math 107</td>
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<tr>
<td>NA TRS 100</td>
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**Second Semester**

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<tr>
<td>Ag Ec 201 [S] or Econ 101 [S] (GER)</td>
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<td>Bio S 372 or NA TRS 300</td>
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<tr>
<td>NA TRS 374</td>
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<td>NA TRS 414</td>
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#### Sophomore Year

**First Semester**

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<tr>
<td>NA TRS 418</td>
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#### Directed Studies and Wildlife Habitat Degree Programs (136 Hours) FYDA

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<td>NA TRS 480</td>
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<tr>
<td>Degree Program Course&lt;sup&gt;4&lt;/sup&gt;</td>
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</tbody>
</table>

<sup>1</sup> Or A S 174 and A S 176 if not participating in the Four-Year Degree Agreement program.

<sup>2</sup> For Directed Studies, see department. For Wildlife Habitat, take NA TRS 280.

<sup>3</sup> Both required, alternating years.

<sup>4</sup> As approved by department, depending on degree program.

<sup>5</sup> One of: Math 140, 171, 201, 202; or Stat 401, 412, 422.

<sup>6</sup> For Directed Studies, see department. For Wildlife Habitat, take NA TRS 435.
### WILDLAND RECREATION MANAGEMENT MAJOR

The wildland recreation major is designed to train wildland recreation managers who recognize, provide, and perpetuate the recreational opportunities associated with natural environments. In addition to the required courses in the curriculum, students are expected to select or develop an option (16-18 hours) in the recreation field. This could be wilderness or dispersed area management, interpretation, state parks management, cultural resources management or it could be a minor in another discipline area such as business, environmental science, regional planning, forestry, wildlife or anthropology.

### FIRST, SECOND, AND THIRD YEAR REQUIREMENTS

#### Freshman Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First</td>
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#### Sophomore Year

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<tr>
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<td>GenEd 111 [A] (GER)</td>
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<td>SoilS 201</td>
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#### Junior Year

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<tr>
<td>NATRS 280 or Zool 412</td>
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<tr>
<td>NATRS 311</td>
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<tr>
<td>NATRS 371</td>
<td>3</td>
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<td>NATRS 372 or 373¹</td>
<td>1 or 3</td>
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<td>Complete Writing Portfolio</td>
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<tr>
<td>Engl 402 [W] (GER)</td>
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<tr>
<td>NATRS 471 or 472¹</td>
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<tr>
<td>NATRS 474⁴</td>
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<tr>
<td>Recreation Option Electives⁵</td>
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<tr>
<td>SoilS 474</td>
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#### Senior Year

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<tbody>
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<td>NATRS 438 [M]</td>
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<tr>
<td>NATRS 471 or 472¹</td>
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<td>NATRS 474</td>
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<td>Tier III Capstone (GER)</td>
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#### WILDLAND RECREATION, DIRECTED STUDIES DEGREE PROGRAM (129 HOURS) ❯ FYDA

#### Senior Year

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<tr>
<td>NATRS 372 or 373¹</td>
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<td>NATRS 403</td>
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<td>Recreation Option Electives²</td>
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<tbody>
<tr>
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<tr>
<td>NATRS 471 or 472¹</td>
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<tr>
<td>NATRS 474</td>
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<td>Tier III Capstone (GER)</td>
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#### WILDLAND RECREATION, INTERPRETATIVE DEGREE PROGRAM (128 HOURS) ❯ FYDA

#### Senior Year

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<tbody>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>NATRS 351</td>
<td>3</td>
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<tr>
<td>NATRS 372 or 373¹</td>
<td>1 or 3</td>
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<td>NATRS 403</td>
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<td>Recreation Option Electives²</td>
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<tbody>
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<td>3 or 4</td>
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<tr>
<td>NATRS 438 [M]</td>
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### BACHELOR OF SCIENCE IN NATURAL RESOURCE SCIENCE

The BS in Natural Resource Science is offered for students most interested in the scientific basis of natural resource management and includes three degree programs: natural resource science, plant science, and wildlife resource science. Each major is composed of a core of basic science and GER courses, a common core of basic natural resource courses and a core of more advanced science courses in the area of the major. Students selecting these curricula frequently intend to pursue graduate study or enter professional schools such as veterinary medicine. Students in the natural resource science and plant resource science degree program in consultation with their advisor develop an individualized curriculum consisting of an additional 21 hours of approved course work emphasizing vegetation sciences.

### NATURAL RESOURCE SCIENCE DEGREE PROGRAM (130 HOURS) ❯ FYDA

#### Freshman Year

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<tr>
<td>Bio S 103 [B] (GER)</td>
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<td>Chem 105 [P] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<tr>
<td>Math 107</td>
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<td>NATRS 100</td>
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<td>3</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>H D 205 [C] (GER)</td>
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<tr>
<td>Math 107</td>
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#### Second Semester

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<tbody>
<tr>
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<td>3 or 4</td>
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<tr>
<td>NATRS 438 [M]</td>
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**1 Both courses required**

**2 9 additional credit hours required, including 3 in Communications**

**3 Two courses from: Bot 332, Entom 434, Geol 310, Zool 423, 428**

**1 Both courses required**

**2 Alternate year course—offered odd years only.**

**3 As approved by department for management; 10 additional credits required**

**4 Both courses required**
**Sophomore Year**

**First Semester**
- Hours: 3 or 4
  - Bio S 104 [B] or Bot 120 [B] (GER) 4
  - Chem 106 [P] (GER) 4
  - GenEd 110 [A] (GER) 3
  - H D 205 [C] (GER) 3
  - NATRS 301 3
  - NATRS Electives 3
  - Stat 212 [N] (GER) 4

**Second Semester**
- Hours: 3 or 4
  - Ag Ec 201 [S] or Econ 101 [S] (GER) 3
  - Bio S 372 or NATRS 300 4
  - GenCB 301 4
  - NATRS 302 [M] 3
  - NATRS Electives 3

**Junior Year**

**First Semester**
- Hours: 3
  - Intercultural [I,G,K] (GER) 3
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - Engl 402 [W] (GER) 3

**Second Semester**
- Hours: 3
  - Arts & Humanities Electives 3
  - Restricted Math Elective 2 or 3

**Senior Year**

**First Semester**
- Hours: 3
  - Animal Resource Elective 3
  - Arts & Humanities [H,G] (GER) 3
  - NATRS Electives 3
  - Quantitative Ecology Elective 3

**Second Semester**
- Hours: 3
  - Restricted Math Elective 2 or 3
  - Soils 201 3

**PLANT RESOURCE SCIENCE MAJOR**

**Freshman Year**

**First Semester**
- Hours: 3 or 4
  - Bio S 103 [B] (GER) 4
  - Chem 105 [P] (GER) 4
  - Engl 101 [W] (GER) 3
  - Math 107 3
  - NATRS 100 1

**Second Semester**
- Hours: 3 or 4
  - Math 140, 171, 201, 202; or Stat 401, 412, 422

**Sophomore Year**

**First Semester**
- Hours: 3 or 4
  - Bio S 104 [B] or Bot 120 [B] (GER) 4
  - Chem 106 [P] (GER) 4
  - GenEd 110 [A] (GER) 3
  - H D 205 [C] (GER) 3
  - NATRS 301 3
  - NATRS 312 2

**Second Semester**
- Hours: 3 or 4
  - Ag Ec 201 [S] or Econ 101 [S] (GER) 3
  - Bio S 372 or NATRS 300 4
  - GenCB 301 4
  - NATRS 302 [M] 3

**Junior Year**

**First Semester**
- Hours: 3
  - Animal Resource Elective 3

**Second Semester**
- Hours: 3
  - Intercultural [I,G,K] (GER) 3

**Senior Year**

**First Semester**
- Hours: 3
  - Animal Resource Elective 3

**Second Semester**
- Hours: 3
  - Arts & Humanities [H,G] (GER) 3

**PLANT RESOURCE SCIENCE MAJOR**

**WILDLIFE RESOURCE SCIENCE MAJOR**

**Freshman Year**

**First Semester**
- Hours: 3
  - Bio S 103 [B] (GER) 4
  - Chem 105 [P] (GER) 4

**Second Semester**
- Hours: 3
  - Math 107 3

**Sophomore Year**

**First Semester**
- Hours: 3
  - Bio S 103 [B] (GER) 4

**Second Semester**
- Hours: 3
  - Math 107 3
### Natural Resources Sciences

**NATRS 100 Introduction to Natural Resource Management I** Nature and significance of natural resources; types of renewable natural resource systems; goals and principles of natural resource management. 

**NATRS 101 Introduction to Natural Resource Management II** Professional fields of natural resource management. Field trip required. 

**204 Introduction to Measurements and Computers in Natural Resources** 2 (1-3) Prereq Math 107, sophomore standing. Introduction to basic concepts, field techniques and the use of spreadsheet systems in natural resources. Field trips required. 

**275 Leisure in Society** 3 Same as RLS 275. 

**280 Introductory Wildlife Management** 3 (2-3) Prereq Bio S 104 or Bot 120. An introductory course in the principles of wildlife management. Field trip required. 

**300 Natural Resource Ecology** 4 (3-3) Prereq Bio S 103; Bio S 104 or Bot 120. Ecology as applied to management of natural resource ecosystems; biological diversity, conservation biology, global climate change in natural resource ecology. 

**301 Forest and Range Plant Resources I** 3 (2-3) Prereq Bio S 104 or Bot 120. Identification and ecology of important forest and range plants with emphasis on woody plants; attributes significant to vegetation management. Field trips required. 

**302 [M] Forest and Range Plant Resources II** 3 (2-3) Prereq NATRS 301. Identification and ecology of important forest and range plants with emphasis on herbaceous plants; attributes significant to vegetation management. Field trips required. 

**303 [B] Conservation of Renewable Resources** 3 (2-3) Prereq completion of Tier I science requirement. A series of case studies of international natural resource conservation issues that emphasizes ecological concepts and human decision making. 

**304 Forest and Range Biology** 3 Prereq Bio S 372 or NATRS 300; NATRS 302 or c/l. Structure and functions of forest and range plants; influence of biotic and environmental factors on plant and stand growth. 

**305 Silviculture** 3 Prereq NATRS 204, 300, 304. Stand dynamics, natural regeneration methods, intermediate stand treatment, relationships of natural resource management to silvicultural practice. Field trips required. 

**311 Natural Resource Economics** 3 Same as Ag Ec 311. 

**312 Natural Resources and Society** 2 Prereq NATRS 100; junior standing. Social views of natural resources, processes by which these views are developed and expressed, social conflict over natural resources. 

**313 Forest Measurements** 2 (1-3) Prereq NATRS 204. Theory and application of forest measurements. Field trips required. Cooperative course taught jointly by WSU and UI (ForPr 374). 

**320 timber Harvesting** 3 (2-3) Prereq NATRS 204. Current practices and problems; planning and coordinating timber harvesting for forest management. Cooperative course taught by UI (ForPr 430), open to WSU students. 

**321 Introduction to Wood Technology** 3 (2-3) Prereq Bio S 103. Anatomy of woody plants, identifying characteristics and properties of woods; relation of wood properties to processing and use. Field trips required. Cooperative course taught by UI (ForPr 277), open to WSU students. 

**331 Forest Pathology** 2 (0-6) Same as PI P 331. 

**345 Forest Entomology** 2 (1-3) Principles and concepts of forest entomology; integration and application of basic knowledge; processes in dealing with forest insect problems. 

**351 Principles of Range Management** 3 Prereq NATRS 301. Basic concepts in range management; range history; physiology of range productivity and utilization; grazing management; range improvements. 

**353 Range Plant Identification Laboratory** 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Identification, forage value, and habitats of North American range plants. S, F grading. 

**357 Range Measurements** 2 (1-3) Prereq NATRS 204. Theory and application of rangeland ecosystem measurements. Field trip required. 

**371 Wildland Recreation** 3 or 4 (3-3) Prereq junior standing. Historic development; benefits; federal, state, and local involvement; current problems and trends in the field of wildland recreation. Field trip required for 4-credit class. 

**372 Wildland Recreation Field Laboratory** 1 (0-3) Prereq NATRS 371 or c/l. Field observation of recreation practices. Field trips required. 

**373 Interpretive Techniques** 3 (2-3) Prereq NATRS 371. Fundamentals and practices in interpreting wildland biological and physical phenomena as related to public recreation. Field trip required. 

**374 Remote Sensing and Aerial Photointerpretation** 3 (2-3) Same as SoilS 374. 

**403 Natural Resource Planning** 3 (2-3) Prereq junior standing. Natural resource management planning processes to include public and private lands; inventory, public involvement, implementation, monitoring, assessing resource values. Credit not granted for both NATRS 403 and 503. Field trip required. 

**407 Forest Populations** 1 Prereq enrollment in CEFES Program. Concepts of genetics, population dynamics and pest management applied to forest management. 

**410 Forest Finance and Valuation** 3 Prereq Ag Ec 201 or Econ 101; Math 107. Economic and financial principles applied to forest management and appraisal. Credit not granted for both NATRS 410 and 510. 

**413 Forest Nursery Management** 2 Forest nursery design; seed processing and quality; nursery equipment and cultural practices; seedling quality. Field trips required. Credit not granted for both NATRS 413 and 513. Cooperative course taught by UI (ForPr 413/513), open to WSU students. 

**414 Ecosystem Surveys and Inventories** 2 (1-3) Prereq Dec S 215, Stat 212 or 412; NATRS 313 or 357. The application of sampling theory in natural resource inventories and surveys. 

**416 Principles of Fisheries Management** 4 (3-3) Application of principles toward managing recreational and commercial aquatic resources. Cooperative course taught jointly by WSU and UI. 

**417 Special Topics** V 1-3 May be repeated for credit; cumulative maximum 6 hours.
418 Forest Growth and Yield 2 (1-3) Prereq Dec S 215, Stat 212, or 412. Factors influencing forest yields, traditional prediction methods; development and application of growth and yield simulators. Credit not granted for both NATRS 418 and 518.

419 Topics in Natural Resource Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Topical issues in natural resource sciences.

420 Wood, Wood Products and Marketing 2 Wood science and its role in the manufacture and marketing of forest products. Credit not granted for both NATRS 420 and 520.

421 Fish Diseases 3 (2-3) Epidemiology, diagnostics, prevention, and treatment of infectious and noninfectious diseases of free living and confined finfish. Cooperative course taught jointly by WSU and UI (Fish 420).

422 Tropical Dendrology and Ecology 3 (2-3) Distribution, physiognomy and climate of world tropical and subtropical vegetation types. Credit not granted for both NATRS 442 and 522. Cooperative course taught by UI (ForPr 420), open to WSU students.

426 Population Analysis 1 Analysis, diagnosis, investigation and forecasting of population change. Credit not granted for both NATRS 426 and 526.

427 Forest Genetics and Tree Improvement 3 Same as GenCB 427. Credit not granted for both NATRS 427 and 527. Cooperative course taught by UI (For/Genet 428/528), open to WSU students.

429 Population Theory 1 Prereq general ecology. Development of the theory of population dynamics from Newton to the present. Credit not granted for both NATRS 429 and 529.

430 Introduction to Wildland Fire 3 Prereq NATRS 300. Physical nature and behavior of wildland fire; the fire environment; fire ecology; practice of wildland fire management.

431 Wildlife Nutrition 3 (2-3) Nutritional requirements and interactions of wildlife populations. Credit not granted for both NATRS 431 and 531.

432 Low-volume Forest Roads 3 Prereq NATRS 320. Road classification; design of forest roads; construction techniques; costs, environmental considerations, design project. Three days of field trips. Cooperative course taught by UI (ForPr 432), open to WSU students.

433 Forest Tractor System Analysis 3 Prereq NATRS 320. Planning, layout, and cost analysis of forest tractor systems; production estimating, machine capabilities, and options; layout project. Three days of field trips. Cooperative course taught by UI (ForPr 432), open to WSU students.

434 Cable Systems Analysis 3 Prereq NATRS 320. Layout, planning, and design for cable logging systems; analysis of forces involved in cable logging; crew and terrain requirements; layout and design project; cost and equipment analysis. Three one-day field trips. Cooperative course taught by UI (ForPr 434), open to WSU students.


437 Wildland Fire Management Laboratory 1 (0-3) Prereq NATRS 430. Wildland fuel combustion; fire behavior; fuel evaluation; fire effects; application to fire management. Field trips required. Credit not granted for both 437 and 537.

438 [M] Natural Resource Policy and Administration 3 (2-2) Prereq Engr 402, NATRS 312, junior standing. Development, content, and implementation of federal public land and natural resource policies emphasizing forest, range, wildlife, and wildland recreation. Credit not granted for both NATRS 438 and 538.

440 Integrated Forest Management Models 3 (2-3) Prereq NATRS 313; 410 or 510. Mathematical programming techniques for decisions in forest planning; coordinate site projects, area analysis, strategic forest plans, and regional forest resource policies. Credit not granted for both NATRS 440 and 540. Cooperative course taught by UI (For 477), open to WSU students.

445 Nongame Management 2 Same as Zool 445.

450 [M] Conservation Biology 3 Ecological and genetic considerations for maintenance of biological diversity and their practical applications to resource management. Credit not granted for both NA TRS 450 and 550.

452 Range Development and Improvements 3 (2-3) Prereq NATRS 351. Developing and improving rangeland forage resources; ecological considerations, plant control, seeding, fertilization, fire, facilitating animal use. Field trips required. Credit not granted for both NATRS 452 and 552.

453 Range Livestock Management 3 Rec NATRS 351. Range livestock management, nutrition and behavior; plant responses to grazing; grazing systems; stocking variables. Field trip required. Credit not granted for both NATRS 453 and 553.

459 Rangeland Ecology 3 Prereq NATRS 302. Application of ecological principles in rangeland management; stressing response and behavior of range ecosystems to various kinds and intensities of disturbance and management practices. Field trips required. Cooperative course taught by UI (Range 459), open to WSU students.

460 Watershed Management 3 Prereq departamental science GERs, junior standing. Principles and practices of management of forest and rangelands for protection, maintenance, and improvement of water resource values. Field trip required. Credit not granted for both NATRS 460 and 560.

461 Management of Freshwater Ecosystems 3 (2-3) Prereq Bio S 102 or Bot 120; Chem 101. Introduction to the science and management of aquatic ecosystems, emphasizing lakes.

471 Wildland Recreation Management 3 (2-3) Prereq NATRS 371. Planning and management techniques applied to wildland recreation problems and situations. Field trips required. Credit not granted for both NATRS 471 and 571.

472 Dispersed Recreation Management 3 (2-3) Prereq NATRS 371. Inventory systems, monitoring and assessing resources and social impacts associated with dispersed recreational use of wildlands. Field trips required. Credit not granted for both NATRS 472 and 572.


479 Natural Resource Management Internship V 2-12 An elective opportunity for select students to supplement their academic training with practical field experience.

480 Big Game Range Management 3 Prereq NATRS 301. Big game habitat management on rangelands and forested ranges; big game habitat rehabilitation. Credit not granted for both NATRS 480 and 580.

485 Aquatic Ecosystem Assessment Methods for Environmental and Natural Resource Sciences 3 (1-6) Prereq NATRS 460, Zool 310, 411. Integrating structural and geomorphic analyses, biologic indicators, water quality, and community-level indices into assessments of ecosystem health and biotic integrity.


488 [M] Senior Thesis in Natural Resources V 3-6 May be repeated for credit; cumulative maximum 6 hours. Prereq senior in NATRS.

490 Wildlife Science Internship V 2-6 May be repeated for credit; cumulative maximum 12 hours. A cooperative internship with wildlife agency for junior and senior students.

491 Integrated Field Studies 2 (1-3) Prereq NATRS 204, 302, 374, junior standing. Two-week field course at the end of spring semester to emphasize interdisciplinary studies of natural resource management.

499 Special Problems V 1-4 May be repeated for credit. S. F. grading.

503 Natural Resource Planning 3 (2-3) Graduate-level counterpart of NATRS 403; additional requirements. Credit not granted for both NATRS 403 and 503.

504 Agroforestry Systems 2 Prereq NATRS 304. Agroforestry systems used in the world including their current use in developing countries. Cooperative course taught by UI (Range 558), open to WSU students.

510 Forest Finance and Valuation 3 Graduate-level counterpart of NATRS 410; additional requirements. Credit not granted for both NATRS 410 and 510.

511 Advanced Forest Economics 2 Legislation and economic policies affecting forestry and the character and intensity of land use. Cooperative course taught by UI (For 581), open to WSU students.

513 Forest Nursery Management 2 Graduate-level counterpart of NATRS 413; additional requirements. Credit not granted for both NATRS 413 and 513. Cooperative course taught by UI (For 513), open to WSU students.

517 Advanced Forest Mensuration 1 Prereq enrollment in CEFES program. Evaluation of forest growth and yield in forest ecosystem management.

518 Forest Growth and Yield 2 (1-3) Graduate-level counterpart of NATRS 418; additional requirements. Credit not granted for both NATRS 418 and 518.

519 Advanced Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

520 Wood, Wood Products and Marketing 2 Graduate-level counterpart of NATRS 420; additional requirements. Credit not granted for both NATRS 420 and 520.
522 Tropical Dendrology and Ecology 3 (2-3) Graduate-level counterpart of NATRS 422; additional requirements. Credit not granted for both NATRS 422 and 522. Cooperative course taught by UI (For 520), open to WSU students.

524 Plant Autecology 3 Prereq course in ecology or plant physiology. Adaptations of individual species in rangeland and forest communities; emphasizing morphological and physiological mechanisms that influence plant establishment, below- and above-ground productivity, plant competition, and grazing sensitivity. Field trips required. Cooperative course taught by UI (Range 560), open to WSU students.

525 Experimental Plant Ecology 3 (1-6) Experimental techniques in plant ecology with orientation toward environmental and physiological measurement in field and laboratory research. Cooperative course taught by WSU, open to UI students (Bot 525).

526 Population Analysis 1 Graduate-level counterpart of NATRS 426; additional requirements. Credit not granted for both NATRS 429 and 529.

527 Forest Genetics and Tree Improvement 3 Graduate-level counterpart of NATRS 427; additional requirements. Credit not granted for both NATRS 427 and 527. Cooperative course taught by UI (For 528), open to WSU students.

529 Population Theory 1 Graduate-level counterpart of NATRS 429; additional requirements. Credit not granted for both NATRS 429 and 529.

531 Wildlife Nutrition 3 (2-3) Graduate-level counterpart of NATRS 431; additional requirements. Credit not granted for both NATRS 431 and 531.

535 Wildlife Ecology 4 (3-3) Graduate-level counterpart of NATRS 435; additional requirements. Credit not granted for both NATRS 435 and 535.

536 Advanced Wildlife Management 4 (3-3) Graduate-level counterpart of NATRS 436; additional requirements. Credit not granted for both NATRS 436 and 536.

537 Wildland Fire Management Laboratory 1 (0-3) Graduate-level counterpart of NATRS 437; additional requirements. Credit not granted for both NATRS 437 and 537.

538 Natural Resource Policy and Administration 3 (2-2) Graduate-level counterpart of NATRS 438; additional requirements. Credit not granted for both NATRS 438 and 538.

540 Integrated Forest Management Models 3 (2-3) Graduate-level counterpart of NATRS 440; additional requirements. Credit not granted for both NATRS 440 and 540.

545 Advanced Forest Environments 4 Prereq enrollment in CEFES program. Meteorology, soils, and vegetation classification of forest environments.

546 Upland Game Ecology 2 Prereq NATRS 435. Ecology and management of wildlife species using forest and rangeland habitats; current management problems and procedures. Cooperative course taught by UI (WLF 546), open to WSU students.

550 Conservation Biology 3 Graduate-level counterpart of NATRS 450; additional requirements. Credit not granted for both NATRS 450 and 550.

551 Range Ecology Concepts 3 Prereq two ecology courses. Ecological concepts of dynamics and distribution of plant communities; secondary succession processes, soil-vegetation relationships and development of vegetation classification schemes. Cooperative course taught by UI (Range 551), open to WSU students.

552 Range Development and Improvements 3 (2-3) Graduate-level counterpart of NATRS 452; additional requirements. Credit not granted for both NATRS 452 and 552.

553 Range Livestock Management 3 Graduate-level counterpart of NATRS 453; additional requirements. Credit not granted for both NATRS 453 and 553.

554 Restoration Ecology 2 Prereq NATRS 302. Restoration of disturbed or damaged ecosystems; fundamental principles from stress physiology and community ecology; review of case studies. Cooperative course taught by UI (Range 552), open to WSU students.

555 International Resource Management Seminar 3 May be repeated for credit; cumulative maximum 9 hours. An issues-centered analysis of natural resource management in global context. Cooperative course taught by WSU, open to UI students (Range 554).

559 Advanced Topics in Range Management V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq NATRS 452. Review of current literature and its application in range management.

560 Watershed Management 3 Graduate-level counterpart of NATRS 460; additional requirements. Credit not granted for both NATRS 460 and 560.

571 Wildland Recreation Management 3 (2-3) Graduate-level counterpart of NATRS 471; additional requirements. Credit not granted for both NATRS 471 and 571.

572 Dispersed Recreation Management 3 (2-3) Graduate-level counterpart of NATRS 472; additional requirements. Credit not granted for both NATRS 472 and 572.

574 Managing Public Use of Wildland Recreation Settings 3 Graduate-level counterpart of NATRS 474; additional requirements. Credit not granted for both NATRS 474 and 574.

575 Advanced Remote Sensing 3 (1-4) Same as SoilIS 574.

580 Big Game Range Management 3 Graduate-level counterpart of NATRS 480; additional requirements. Credit not granted for both NATRS 480 and 580.

588 Advanced Topics in Wildlife V 1-3 May be repeated for credit; cumulative maximum 10 hours. Biology and management of wildlife species. Cooperative course taught jointly by WSU and UI (WLF, For, FWR, Range, RecMgt 503).

593 Special Topics Seminar 1 May be repeated for credit. Prereq 20 hours NATRS. Literature and problems.

594 Environmental and Natural Resources Issues and Ethics 3 Prereq senior standing. May be repeated for credit; cumulative maximum 7 hours. Ethical systems applied to natural resources; issues of professionalism and ethics in natural resource management.

595 Seminar in Forest and Range Management 1 May be repeated for credit. Literature review; preparation and presentation of reports in natural resource sciences.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Naval Science Program

The Navy-Marine Corps Officer Education Program, administered and taught by the NROTC staff at the University of Idaho, is open to men and women and offers scholarships leading to receive commissions in the Navy and Marine Corps and active duty as Navy or Marine Corps officers. Normally, students enter the program at the beginning of their freshman year; however, selected students may enter up to the beginning of their junior year. Students take 20 hours of professional courses taught by the Navy and Marine Corps staff of the NROTC unit. In addition to the professional courses, students enrolled in the NROTC Program must also participate in Naval Science Drill (N S 100) each semester. Following graduation, the newly commissioned officer is offered a broad variety of duty assignments including duty on nuclear submarines and surface ships, in naval aviation, and ground or aviation assignments in the Marine Corps. All commissionees go on active duty at full pay and allowances immediately upon graduation.

Scholarship Program

The scholarship benefits include tuition, fees, books, and a $150 a month stipend.

Application for this program is normally made during the early fall of the student’s senior year of high school. Initial selections are based on college entrance examination scores (SAT or ACT) and high school academic performance.

A student on scholarship participates in three summer training cruises of four to six weeks duration. During the first cruise, students are introduced to the submarining, amphibious warfare (Marine Week), surface warfare, and aviation communities. The second and third cruises are aboard ships of the Pacific or Atlantic fleets and often include travel to Europe or the Far East.

During summer cruises, the students receive one-half the pay of an ensign, in addition to room and board.

Graduates of this program are commissioned as reserve officers in the Navy or Marine Corps.

College Program

Application for this program is made directly to the head of the Department of Naval Science. Students receive their uniforms and naval science textbooks at no cost and begin receiving a monthly stipend of $150 per month at the beginning of their junior year. College Program students may be nominated by the Professor of Naval Science for a scholarship, if their grades and military aptitude marks are sufficient to warrant such nomination. The program requires one training cruise during the summer following the junior year. It is an afloat cruise of the
same type and with the same pay as described for the Scholarship Program. Graduates of this program are commissioned as reserve officers and are ordered to active duty upon graduation.

**Marine Corps Option**

Both male and female Scholarship and College Program students who desire a Marine Corps commission may apply for the Marine Corps Option during their first two years in college. Students taking this option enroll in specialized classes on Marine Corps subjects during their junior year and participate in summer training at the Marine Corps Development and Education Center, Quantico, Virginia during the summer following their junior year.

**Naval Science Institute**

Naval Science Program

1. **100 Drill Lab**
   - No credit. Required of all Navy-Marine Science Program students who desire a Marine Corps commission may apply for the Marine Corps Option during their first two years in college. Students taking this option enroll in specialized classes on Marine Corps subjects during their junior year and participate in summer training at the Marine Corps Development and Education Center, Quantico, Virginia during the summer following their junior year.

2. **101 Introduction to Naval Science**
   - 2 Roles of major elements of naval service; design and structure of ships. Cooperative course taught by UI (NS 101), open to WSU students.

3. **102 Ships Systems I**
   - 3 Introduction to control and propulsion systems of naval ships; nuclear and conventional power. Cooperative course taught by UI (NS 102), open to WSU students.

4. **103 Ships Systems II**
   - 3 Naval weapons: ballistics, control, propulsion, components, systems analysis. Cooperative course taught by UI (NS 201), open to WSU students.

5. **201 Sea Power and Maritime Affairs**
   - 2 U.S. Navy and marine merchant seapower, development, and policy. Cooperative course taught by UI (NS 202), open to WSU students.

6. **202 Directed Study**
   - 1 or 2 May be repeated for credit; cumulative maximum 12 hours. By interview only. Cooperative course taught by UI (NS 299), open to WSU students.

7. **301 Navigation**
   - 3 Theory, principles, and procedures of terrestrial and celestial navigation. Cooperative course taught by UI (NS 301), open to WSU students.

8. **302 Naval Operations and Organization Management**
   - 2 Theories of management and organization resources, motivational theories and leadership. Cooperative course taught by UI (NS 401), open to WSU students.

9. **303 Naval Leadership**
   - 2 Rec NS 301. Principles and styles of leadership, personal attributes, and group dynamics. Cooperative course taught by UI (NS 402), open to WSU students.

10. **304 Amphibious Operations**
    - 3 Rec NS 311. Amphibious doctrine from Gallipoli to Mayaguez. Cooperative course taught by UI (NS 412), open to WSU students.

11. **401 Basic Leadership**
    - By interview only. Practical application of leadership and management techniques through athletics. Cooperative course taught by UI (NS 499), open to WSU students.

12. **402 Intermediate Leadership**
    - By interview only. Practical application of leadership and management techniques through the branch and division officer level. Cooperative course taught by UI (NS 499), open to WSU students.

13. **501 Advanced Leadership**
    - By interview only. Practical application of leadership and management techniques through the department head level. Cooperative course taught by UI (NS 499), open to WSU students.

14. **Minor in Naval Science**
    - N S 101, 102, 201, 202; four to six courses from the following: N S 301, 302, 311, 401, 402, 412.

### Transfer Students

Students who plan to transfer to nursing at Washington State University from other institutions should discuss their program early with the nursing advisor on the Pullman campus to select courses that will be applicable to the degree requirements.
Registered nurses who plan to obtain their baccalaureate degree in nursing from Washington State University may obtain admission and curriculum information from their nursing advisors on the Pullman, WSU Tri-Cities and WSU Vancouver campuses.

MASTER OF NURSING PROGRAM

The Graduate Program in Nursing at the Intercollegiate Center for Nursing Education (ICNE) was established in 1983 and has been accredited by the National League for Nursing (NLN) since 1986. The program builds upon an undergraduate baccalaureate degree in nursing and provides a basis for further study at the doctoral level. The purpose is to prepare students for leadership positions in advanced nursing practice. Acute Care Nursing, Community Health Nursing, Psychiatric/Mental Health Nursing, and Family Nurse Practice specializations are available.

The Master of Nursing program is open to students who hold a Bachelor of Science in Nursing degree from a National League for Nursing (NLN)-accredited program. Admission is granted on the basis of the student’s (1) undergraduate g.p.a., (2) skills in history taking and physical assessment, (3) completion of a course in basic descriptive and inferential statistics, (4) eligibility for licensure as a registered nurse in Washington state, and (5) recommendations relative to professional nursing competence and prediction of success as a graduate student.

Students apply to the Graduate School Office in Pullman and the Graduate Program Office at the ICNE. Program information, determination of student interests and goals, and assignment of a faculty advisor are provided by the Graduate Program Office at the ICNE.

Degree Program Requirements

BACHELOR OF SCIENCE (126 HOURS)

The Bachelor of Science in Nursing degree requires a total of 120 semester hours. All students must meet the General Education Requirements for graduation as described elsewhere in the catalog. The prenursing course requirements are indicated by an asterisk (*) in the schedule of studies listed below. Fifty-nine semester hours are required in 300-400-level nursing major courses. Additional 300-400-level nursing or non-nursing electives may be required.

A grade of C or better is required in all prerequisite courses and nursing courses. Criteria for admission to the 300-400-level nursing major include an overall cumulative g.p.a. of 2.5 or higher and a cumulative g.p.a. of 2.5 or higher in prerequisite courses.

Freshman Year

First Semester

- Arts & Humanities [H,G] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Stat 212 4
- Zoool 315 4
- Elective 2

Second Semester

- FSHN 233 3
- Micro 101 [B] (GER) 4
- Nurs 200 2
- Zoool 251 4
- Elective 3

Sophomore Year

First Semester

- Arts & Humanities [H,G] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Stat 212 4
- Zoool 315 4
- Elective 2

Second Semester

- FSHN 233 3
- Micro 101 [B] (GER) 4
- Nurs 200 2
- Zoool 251 4
- Elective 3

Junior Year

First Semester

- Nurs 310 2
- Nurs 312 3
- Nurs 320 3
- Nurs 321 4
- Nurs 330 3
- Complete Writing Portfolio

Second Semester

- Nurs 313 [M] 2
- Nurs 342 2
- Nurs 343 3
- Nurs 344 2
- Nurs 345 3
- Nurs 346 2
- Elective 2

Senior Year

First Semester

- Nurs 401 2
- Nurs 402 2
- Nurs 420 5
- Nurs 421 6
- Tier III Capstone (GER) 3

Second Semester

- Nurs 403 3
- Nurs 440 2
- Nurs 441 4
- Nurs 450 3
- Nurs 451 3

BACHELOR OF SCIENCE

Option for Registered Nurses

16 credits from Nurs 360, 364, 460, 461, 462, 463, 466.
15 credits from Nurs 310, 312, 401, 402, 440, 441, 340 credits from Nurs 320, 321, 342, 343, 344, 345, 346, 420, 421 or through credit by exam. 2 credits elective.

MASTER OF NURSING

The program consists of 36-39 semester credits (46 semester hours for FNP option) which may be completed in one and one-half academic years (two academic years for the FNP option). Provision is made for part-time matriculation over a longer period of time, subject to policies and requirements of Washington State University and the ICNE. Candidates for the MN degree are required to demonstrate competency in relevant computer applications. A thesis or specified non-thesis option is required.

Core Courses and Credit Hours in the Areas of Concentration

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Courses Required for Psychiatric/Mental Health Nursing

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Courses Required for Acute Care Nursing

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Courses Required for Community Health Nursing

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Courses Required for Family Nurse Practice

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*Nurs 503 is not required of Family Nurse Practitioner area of concentration. Essential content is integrated in Nurs 567, Nurs 568, and Nurs 569 seminars.

**Required for Family Nurse Practitioner area of concentration.

Description of Courses

The following courses are offered at the Intercollegiate Center for Nursing Education at Spokane and Yakima. Courses in the baccalaureate science program for registered nurses are also offered at WSU Tri-Cities, WSU Vancouver, and Wenatchee.
200 Profession of Nursing 2 Theoretical/historical aspects of professional nursing; development of nursing roles, scopes of practice, problem solving, and ethical decision making.

307 Assertiveness Training for Nurses 2 Prereq junior in Nurs. Assertion techniques and conflict management skills in personal and nursing situations; integrating theoretical concepts into practical situations. S, F grading.

310 Pharmacological Basis of Nursing Practice 2 Prereq major in Nurs or written permission of instructor. Utilization of pharmacological concepts as a basis for critical thinking and decision making in nursing.

312 Pathophysiological Basis of Nursing Practice 3 Prereq major in Nurs or written permission of instructor. Pathophysiological processes, interrelatedness with physiological defense mechanisms, theories of stress adaptation, age and psychological/behavioral responses.


320 Nursing Concepts: Foundations 3 Prereq Nurs 310, 312, 330, or c//. Nursing concepts foundational to care of well/ill clients; nursing process, nurse/client roles, communication, relationship, basic needs and teaching-learning theories.

321 Nursing Practice: Foundations 4 (0-12) Prereq Nurs 310, 312, 320, 330, or c//. Clinical application of the nursing process; psychomotor skills and interpersonal relationships in the care of adult clients.

330 Nursing Concepts and Practice: Health Assessment 3 (2-3) Prereq major in Nurs or written permission of instructor. Holistic multi-dimensional assessment of the well client throughout the adult years; comparison of findings with established norms.

342 Nursing Concepts: Maternity Nursing 2 Prereq Nurs 310, 312, 320, 321, 330; 313, 346, or c//. Normal reproductive processes and common health problems associated with reproduction; assessment and nursing care during the antepartum, intrapartum, and postpartum cycles.

343 Nursing Practice: Maternity Nursing 3 (0-9) Prereq Nurs 310, 312, 320, 321, 330; 313, 342, 346, or c//. Experience in the care of mothers in the antepartum, intrapartum, and postpartum periods and newborns; family care and family planning. S, F grading.

344 Nursing Concepts: Nursing of Children 2 Prereq Nurs 310, 312, 320, 321, 330; 313, 346, or c//. Normal growth and development concepts applied to maintenance of child health, care of acutely ill hospitalized children, and needs of children requiring chronic care.

345 Nursing Practice: Nursing of Children 3 (0-9) Prereq Nurs 310, 312, 320, 321, 330; 313, 344, 346, or c//. Experience in health maintenance and nursing care of children with acute and/or chronic health problems; family is included in care planning. S, F grading.

346 Nursing Concepts: Family and Child Development 2 Prereq major in Nurs or written permission of instructor. Physical, cognitive, psychosocial, and moral development of children, infancy through adolescence; theoretical framework; family development and family theory.

350 Therapeutic Communication in Nursing 1 or 2 Prereq junior in Nurs. Therapeutic communication and relationship development with the well/ill client; various coping strategies used by nurse and client. S, F grading.

360 Professional Nursing Concepts and Issues 2 Prereq major in Nurs, RN or by interview. Philosophical, historical, economic, legal/ethical, and professional issues designed for registered nurses to build upon previously acquired professional concepts.

364 Nursing Concepts and Practice: Health Assessment for RNs 3 (2-3) Prereq major in Nurs, RN or by interview. Holistic assessment of clients throughout the age continuum. For RNs with a basic knowledge of assessment skills of adult clients.

398 Special Topics VI-3 May be repeated for credit; cumulative maximum 6 hours.

401 [M] Nursing Leadership: Research 2 Prereq major in Nurs or written permission of instructor. Focus on the process of scientific inquiry used in investigating nursing problems.

402 Nursing Leadership: Group Theory 2 Prereq major in Nurs or written permission of instructor. Group and leadership theories as they relate to the practice of professional nursing.

403 Nursing Leadership and Management 3 Prereq Nurs 420, 421, or written permission of instructor. Application of leadership/management theories to steps of the management process; analysis of selected issues critical to the professional nurse.

420 Nursing Concepts: Adult 5 Prereq Nurs 342, 343, 344, 345, or c//. Medical-surgical concepts as a basis for critical thinking and decision making in nursing.

421 Nursing Practice: Adults 6 (0-18) Prereq Nurs 342, 343, 344, 345; 401, 402, 420, or c//. Holistic nursing management of adult health/illness problems; demonstration of critical thinking in development of clinical judgement and skill acquisition.

440 Nursing Concepts: Community Health 2 Prereq Nurs 420, 421, or c//. Synthesis of nursing and public health concepts with focus on community as partner, and population-based practice.

441 Nursing Practice: Community Health 4 (0-12) Prereq Nurs 421; 402, 403, 440, or c//. Clinical application of nursing, public health, and management concepts; emphasis on population-based collaborative practice. S, F grading.

450 Nursing Concepts: Psychiatric/Mental Health 3 Prereq Nurs 420, 421. Nursing process with clients experiencing psychiatric/mental health disruptions; history, theories, legal/ethical issues of psychiatric/mental health nursing.

451 Nursing Practice: Psychiatric/Mental Health 3 (0-9) Prereq Nurs 402, 420, 421; 450 or c//. Clinical application of nursing process with patients experiencing acute and chronic psychiatric/mental health disruptions.


462 Selected Nursing Concepts: Psychiatric/Mental Health 2 Prereq Nurs 402 or c//; or by interview. Selected nursing process with individuals and families experiencing psychiatric/mental health disruptions.

463 Selected Nursing Practice: Psychiatric/Mental Health 2 (0-6) Prereq Nurs 402 or c//; Nurs 462 or by interview. Clinical application of psychiatric/mental health nursing process with individuals and families experiencing acute chronic disruptions.

466 Nursing Leadership/Management: Concepts and Principles 2 Prereq Nurs 360, 461 or by interview. Leadership/management applied to nursing; theoretical basis for the baccalaureate nurse’s role in nursing management.

477 Health Care Ethics 2 or 3 Prereq senior standing. Ethical theories including deontology, teleology, virtue ethics and applicability to ethical dilemmas in nursing. Credit not granted for both Nurs 477 and 577.

483 Gerontological Nursing 3 Prereq senior standing. Selected physical, emotional and social problems of the elderly; identification of nurse’s role and interventions in a variety of settings; public policy issues.

498 Special Topics in Nursing V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq Nurs 320 or by interview.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Theoretical Perspectives in Nursing 3 Prereq graduate standing in Nurs. Theory development and evaluation; models and methods; criteria for analysis; selected theories of nursing.

504 Methods of Nursing Research 4 Prereq Nurs 503 or c//. Research process as foundational to both conduct of scientific inquiry and utilization of findings.

507 Health Care Policy Analysis 2 Prereq graduate standing in Nurs. Analysis of health care system policy; exploration of issues of clinical management and community resource utilization including advocacy techniques.

513 Innovative Leadership and Management V 3, 4 (3-3); or 5 (3-6) Prereq graduate standing in Nurs. Key issues affecting nursing administration; nursing and management theories for application in nursing service settings.

517 Financial and Human Resources Management V 3, 4 (3-3), or 5 (3-6) Prereq graduate student in Nurs. Human resource utilization theories and concepts in nursing systems; application of economic principles to human resource utilization and program development.


523 Nursing Education: Role Analysis and Curriculum Development V 3-6 Prereq graduate standing in Nurs. Key issues affecting nursing education; application of educational theories in a variety of nursing education settings; critical analysis of concepts.
524 Multimedia Approaches to Instruction and Evaluation V 2-4 Prereq Nurs 521. Group and individualized instruction and evaluation; creating instructional software, use of TV studio, AV, and computers.

536 Practicum in Adult Acute Care Nursing 4 (1-9) or 5 (1-12) Prereq graduate standing in Nurs. Individualized field experience and seminar designed to provide advanced competency in acute care nursing of adults in role of expert clinician.

537 Role Analysis: Advanced Practice 2 (1-3) Prereq graduate student in Nurs. Emphasis on role analysis including interdisciplinary relationships, consultative skills, responsibility, activities, and functions of the advanced practice nurse.

539 Clinical Nurse Specialist Practicum 2 (0-6) Prereq Nurs 537 or c/l. Selected key concepts and issues essential to the practice of clinical nurse specialists.

541 Psychiatric/Mental Health Nursing: Individuals 4 (3-3) Prereq graduate standing in Nurs. Psychopathology and appropriate nursing interventions with individuals across age spectrum; families, support groups, and communities.

543 Psychiatric/Mental Health Nursing: Groups and Families 4 (3-3) Prereq graduate standing in Nurs. Therapeutic approaches and key issues affecting psychiatric/mental health nursing; including interdisciplinary relationships.

546 Practicum in Psychiatric/Mental Health Nursing 4 (1-9) or 5 (1-12) Prereq Nurs 541, 543. Individualized clinical experience/seminar designed to provide advanced competency, accountability, leadership in psychiatric/mental health nursing.

551 Advanced Community Health Nursing Concepts 3 Prereq graduate standing in Nurs. Evaluation of concepts inherent in advanced community health practice at the community/aggregate level.

552 Family Nursing in the Community V 2-4 Theoretical approaches to the analysis of normal and at-risk families; application of family assessment and intervention models when planning care.

554 Epidemiological Approaches to Community Health 3 Prereq graduate standing in Nurs. Epidemiological application to health; implications for health promotion, disease prevention; focus: knowledge and skills required to obtain and use data bases.

556 Advanced Community Health Nursing Practice V 3 (2-3) or 4 (2-6) Prereq Nurs 551, 554, 566, 565 or c/l. Combination of group seminar, individualized field experience with focus on application, analysis of concepts and implementation of project.

562 Advanced Health Assessment and Differential Diagnoses 4 (3-3) Prereq graduate standing in Nurs. Advanced holistic health assessment/differential diagnosis; analysis of data from biological, sociological, psychological, cultural, and spiritual dimensions.

563 Advanced Pharmacological Concepts and Practice 3 (2-3) Prereq graduate standing in Nurs. Pharmacology for clinical practice including decision making, prescribing, drug monitoring, and patient education associated with prescriptive authority.

564 Health Promotion in Nursing Practice 2 or 3 Prereq graduate standing in Nurs. Theoretical bases including cultural variations for selected health promotion strategies for neonates through elderly clients.

565 Information Management for Nursing Practice 3 (2-3) Prereq computer competency in word processing/spreadsheets. Application/evaluation of nursing informatics; use for management of patient care data in nursing practice and administration.

566 Community Analysis and Program Planning 3 (2-3) or 4 (2-6) Prereq graduate standing in Nurs. Application of core public health functions in community analysis, program development and program evaluation.

567 Primary Care: Adults and Elders 4 (2-9) Prereq Nurs 562. Assessment, differential diagnosis, therapeutic intervention with adults; developmental changes; opportunities to provide diagnostic, maintenance, and follow-up care.

568 Primary Care: Infants, Children and Adolescents 3 (1-6) Prereq Nurs 567. Assessment, differential diagnosis, and therapeutic intervention with infants, children, and adolescents in healthcare settings.

569 Primary Care: Family 4 (1-9) Prereq Nurs 568. Assessment, differential diagnosis, therapeutic intervention with individuals in childbearing, childrearing, and multigenerational families.

576 Advanced Concepts in Nursing 2 Prereq graduate standing in Nurs. Exploration of linkage between nursing science concepts and nursing practice through analysis of relevant research.

577 Health Care Ethics 2 or 3 Graduate-level counterpart of Nurs 477; additional requirements. Credit not granted for both Nurs 477 and 577.

581 Advanced Physiology and Pathophysiology I 4 Prereq graduate standing in Nurs. Advanced cellular and system physiology/pathophysiology related to health care of individuals with cardiopulmonary, renal, and hematological diseases.

582 Advanced Physiology and Pathophysiology II 3 Prereq graduate standing in nursing. Advanced cellular and system physiology/pathophysiology related to health care of individuals with neuroendocrine, gastrointestinal, and immune diseases.

583 Advanced Gerontological Nursing 3 or 4 Prereq graduate standing in Nurs. Comprehensive analysis of research studies regarding nursing care of elderly persons; nursing interventions and health of elderly persons.

592 School Nursing I 5 (3-6) or 6 (4-6) Prereq graduate standing in Nurs. Use of nursing process to assess and evaluate total health-development status of students in school environment.

594 School Nursing II 3 (2-3) or 4 (3-3) Prereq Nurs 504, 592. Knowledge and application: advanced health assessment, care of the school-aged child, consultation, school health program development and evaluation.

595 Internship V 1-5 Prereq Nurs 562, 563, 567. Application and integration of theoretical content, research findings, and assessment and intervention strategies into primary care practice. S, F grading.

598 Advanced Topics in Nursing V 1-3 May be repeated for credit; cumulative maximum 6 hours.

599 Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Program in Nutrition

Professor and Program Director: A. McCurdy; Professors, B. Chew, F. Hoskins, R. Kincaid, L. Massey, D. Price, B. Swanson; Associate Professors, J. Armstrong, K. Beerman, V. Hillers, J. McNamara, M. Mitchell, M. Nelson, D. Pond-Smith, T. Shultz; Assistant Professor, C. Heiss.

The interdepartmental graduate Program in Nutrition offers a program of study leading to a Doctor of Philosophy (Nutrition). Participating faculty are from the areas of food science and human nutrition, animal sciences, and human development.

The PhD program has two options: biological science and social science. In addition to taking advanced courses in nutrition, all students must select some supporting course work in physiology, biochemistry, and statistics. Students in the social science option select 12 credits of graduate social science, such as education, psychology, sociology, while biological science option students select additional course work in chemistry and biology. Programs of study and research are individually planned by the student with an appropriate graduate advisory committee. The emphasis is on scientific research in nutrition. Studies of the metabolism of nutrients, additives and various other biological chemicals are currently being explored in human beings and other animal systems. Behavioral nutrition research examines sociocultural, economic and political influences on food choice, dietary quality and nutritional status using social science research methods such as surveys, focus groups and in-depth interviews. The combined research facilities of participating departments are available. Students are generally located in the various cooperating departments where they conduct their research.

Expected preparation for doctoral study in nutrition is biochemistry, three semesters of biological science, physiology, mathematics and two semesters of 300-400-level nutrition. Students choosing the biological science option should also have quantitative chemistry and physics. Applications must include complete transcripts and three letters of recommendation attesting to the applicant’s qualifications for graduate study, and a statement of area of interest and program option.

Description of Courses

Nutrition

Nutr

500 Seminar in Nutrition 1 May be repeated for credit; cumulative maximum 5 hours. Seminar on current research issues in nutrition.

505 Experimental Nutrition 3 (1-6) Same as A S 505.

507 Advanced Nutrition Metabolism 2 Same as A S 507.

508 Seminar-Written 2 Same as FSHN 508.
513 Mineral and Vitamin Metabolism 4 Same as A S 513.
520 Research Methods in Behavioral Nutrition 3 Same as FSHN 520.
521 Research Techniques in Nutrition 3 (1-6) Same as FSHN 521.
526 Advanced Community Nutrition 3 Same as FSHN 526.
531 Nutrition and Aging 2 Same as FSHN 531.
533 Pathophysiology of Human Nutrition 3 Same as FSHN 533.
598 Advanced Topics in Nutrition 1 or 2 May be repeated for credit. Recent research in nutrition.
600 Special Projects or Independent Study Variable credit. S, F grading.
800 Doctoral Research, Dissertation and/or Examination Variable credit. S, F grading.

Program in Pharmacology and Toxicology


The sciences of pharmacology and toxicology are important to maintenance of human and animal health, food resources, and environmental quality. Pharmacologists and toxicologists study the interaction of chemicals with biological systems to understand their adverse effects and their useful effects for the treatment of disease. The Pharmacology and Toxicology Program consolidates the research and teaching expertise of faculty primarily in the Colleges of Pharmacy and Veterinary Medicine and also in the departments or programs of chemistry, entomology, food science, genetics, neuroscience, and zoology at Washington State University and in the veterinary science department at the University of Idaho. The Pharmacology and Toxicology Program is designed to prepare students for careers in research and teaching with both Master of Science and Doctor of Philosophy degrees offered.

Students entering the Pharmacology and Toxicology Program should have completed undergraduate work in biology, chemistry, including organic chemistry and biochemistry, mathematics through calculus, and physiology. Deficiencies may be rectified during the first year of graduate study. Each student in the program is required to complete the core curriculum:

**Hours**
- BC/BP 563/564 6
- P/T 501 1
- P/T 506 3
- P/T 597 1
- Stat 512 3

In addition, 13 hours from advanced courses in pharmacology or toxicology are required for the various areas of emphasis. Elective course work that complements each student’s research and career interests is selected by the student in consultation with their advisors. Each student is required to write a thesis based upon original laboratory research. The research interests of the faculty span a broad spectrum, e.g., carcinogenesis and cancer chemotherapy, endocrine pharmacology, immunopharmacology, neurochemical and central nervous system pharmacology, thrombosis and hemostasis, cardiovascular pharmacology, mutagenesis, teratology and developmental toxicology, xenobiotic metabolism, design of enzyme inhibitors, and chemical residues and natural toxicants in food.

Pharmacy and veterinary medicine faculty in the Pharmacology and Toxicology Program are housed primarily in Wegner Hall. The building was recently remodeled and provides an excellent atmosphere for study and research. Modern instruments available for pharmacological and toxicological research include: ultraviolet, infrared, circular dichroism, fluorescence, and Fourier transform nuclear magnetic resonance spectrometers, mass spectrometer, gas and high performance liquid chromatographs, centrifuges, ultracentrifuges, an electron microscope, and scintillation counters. In addition, the building houses a health sciences library and a variety of equipment to maintain a variety of research animals. Excellent research facilities house other members of the pharmacology and toxicology faculty at the University of Idaho, and at various locations on the WSU campus.

Applications for admission to the program must include GRE scores, transcripts for all college level work, three letters of recommendation, and a description of career objectives. For students whose native language is not English, TOEFL scores are also required. Applications and inquiries should be directed to Admissions Committee Chair, Pharmacology and Toxicology Graduate Program, Pullman, WA 99164-6510.

**Description of Courses**

**Pharmacology and Toxicology**

P/T

**501 Perspectives in Pharmacology and Toxicology** 1 Same as V Ph 501.

**505 Principles and Methods of Toxicology** 3 Basic concepts in toxicology and the methodology currently employed for toxicological investigations. Cooperative course taught by WSU, open to UI students (FST 505).

**506 Principles of Pharmacology** 3 Preq: BC/BP 563 or c/l, college-level physiology course or c/l. Fundamental mechanisms of drug action and the factors that modify drug responses; overview of all areas of pharmacology. Cooperative course taught by WSU, open to UI students (FST 506).

**510 Advanced Pharmacokinetics/Toxico-inet""s 2 Preq: BC/P 506. Kinetics of drug absorption, distribution, elimination, and pharmacologic response. Cooperative course taught by WSU, open to UI students (FST 510A).

**511 Topics in Toxicology** V 1-4 May be repeated for credit; cumulative maximum 12 hours. By interview only. Topics of current interest in toxicology and closely related areas. Cooperative course taught by WSU, open to UI students (FST 511B).

**512 Topics in Pharmacology** V 1-4 May be repeated for credit; cumulative maximum 12 hours. By interview only. Topics of current interest in pharmacology and closely related disciplines. Cooperative course taught by WSU, open to UI students (VS 512C).

**525 Instrumental Methods in Pharmacology and Toxicology** 3 (2-3) Preq: BC/BC 526. Cooperative course taught by WSU, open to UI students (FST 525).

**532 Metabolism of Drugs and Toxins** 2 Preq BC/BC 532/564; Rec P/T 506. Pathways, enzymology, and mechanisms of metabolism of drugs, environmental contaminants and other xenobiotics; pharmacological and toxicological impact of metabolism. Cooperative course taught by WSU, open to UI students (FST 532A).

**535 Pathophysiology of Blood** 3(2-3) Same as V Ph 535.

**540 Neuropharmacology** 3 Same as Neuro 540.

**556 Insecticides: Toxicology and Mode of Action** 1 Same as Entom 556.

**557 Herbicides: Toxicology and Mode of Action** 1 Same as Entom 557.

**558 Pesticide Topics** 1 Same as Entom 558.

**561 Receptorology** 2 Preq P/T 506. The role of ligand-receptor interactions in biological responses to drugs and poisons. Cooperative course taught by WSU, open to UI students (VS 561).

**564 Brain-Endocrine Interaction** 3 Same as V Ph 564.

**566 Molecular Mechanisms of Target Organ Toxicity** 2 Preq P/T 505 Molecular and mechanistic aspects of chemical-induced toxicity in the liver, immune system, kidney, heart and central nervous system. Cooperative course taught by WSU, open to UI students (FST 566).

**567 Risk Assesment Methods** 2 Preq P/T 506, by interview only. Principles of toxicity testing, decision theory, good laboratory practices, protocol development and risk assessment methods. Cooperative course taught by WSU, open to UI students (FST 567).

**572 Fundamentals of Oncology** 3 Preq BC/BC 564. Thorough overview of cancer biology encompassing basic cellular and molecular mechanisms of carcinogenesis and tumor progression, treatment and prevention. Cooperative course taught by WSU, open to UI students (FST 572).

**597 Pharmacology and Toxicology Seminar** 1 May be repeated for credit; cumulative maximum 12 hours. S, F grading. Cooperative course taught by WSU, open to UI students (FST 597).

**600 Special Projects or Independent Study** Variable credit. S, F grading.

**700 Master’s Research, Thesis, and/or Examination** Variable credit. S, F grading.

**800 Doctoral Research, Dissertation, and/or Examination** Variable credit. S, F grading.

College of Pharmacy

The objective of the College of Pharmacy is the development of students for a lifetime of responsible service in the pharmaceutical profession. The curriculum of the college is designed to prepare graduates for careers in community pharmacy, hospital practice, industry, nursing homes, government, and teaching.

The schedule of studies for the PharmD degree is a six-year program consisting of two prepharmacy years and four professional years. The professional curriculum is built upon a solid foundation of general sciences and mathematics and is integrated with courses in the humanities and social sciences.

Throughout the professional years of instruction, special attention is given to developing in students a concern for the total health care of patients and the general public. For example, the clinical pharmacy program on campus and in cooperating hospitals of the area emphasizes the role of the pharmacist in patient care in both institutions and community practice. The preclinical basic science courses are carefully designed to prepare students for such experience.

The experiential component of the pharmacy curriculum is conducted primarily off campus. The experiential program is composed of 42 weeks divided into seven six-week blocks, two blocks of externships and five blocks of clerkships. The externship program is designed to provide students with practical professional experience in both community pharmacy settings and institutional pharmacy settings including hospitals, and extended care facilities. The clinical clerkship is an interdisciplinary experience in which the pharmacy student is assigned to a team of health care professionals in a hospital or other patient care setting. These practice experiences are conducted at a variety of community and hospital sites, primarily in the Spokane, Washington area but may also include other locations. Students are encouraged to complete one or both externships during the summer following the second professional year. The remaining externships and clerkships are completed during the calendar year immediately following the end of the spring semester of the third professional year.

**Degree Program Requirements**

### PHARMACY DEGREE PROGRAM (196 HOURS)

#### Freshman Year

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| PharP 561 | 1-12 |
| PharP 562 | 1-12 |
| PharP 563 | 1-20 |
| PharP 599 | 2 |

#### Sixth Year

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Students must complete 12 credits each in acute care and ambulatory care and 6 credits in other clerkships. Students may complete 480 hours of approved internship to fulfill each of these courses.

### Description of Courses

#### Pharmaceutical Science

**PharS 332 Pharmaceutical Calculations**

1. The mathematics of pharmacy for dispensing practitioners; introduction to statistical methods. S, F grading.

#### Departmental Prepharmacy

**Requirements For Entry-Level PharmD Degree**

1. Bio S 103, 104
2. Chem 105, 106
3. Chem 340, 341, 342
4. Math 140
5. Micro 301
6. Statistics
7. BC/BP 364
8. Total Credit Hours
9. Computer Literacy: Students must demonstrate knowledge in use of word processing and spreadsheet software.

The program will enroll 72 students annually for a total of 288 in all four years.
College of Pharmacy

433 Pharmacuetics III 3 Prereq PharS 332, 432. Kinetics of drug absorption, distribution, and elimination; dosage regimens, design, bioavailability.

437 Pharmacuetics Laboratory I 1 Prereq PharS 431. Laboratory in the preparation of solutions, solid, semisolid, and dispersed liquid dosage forms.
438 Parenteral Products Laboratory 2 (1-3) Prereq PharS 433, 437. Preparation of intravenous dosage forms, intravenous admixtures, parenteral nutrition and fluid/electrolyte mixtures.

442 Pharmacological Basis of Therapeutics III 8 Prereq PharS 441. Structure activity relationship, mechanism of action, pharmacodynamics of chemotherapeutics, peripheral nervous system, cardiovascular, renal and gastrointestinal diseases.
444 Pharmacological Basis of Therapeutics IV 3 Prereq PharS 442. Medicinal chemistry, pharmacology of drugs acting on the central nervous system and endocrine system.
446 Toxicology 2 Clinical toxicology emphasizing the mechanism of action of common household and environmental toxins and addressing public health issues.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.
531P Pharmacuetical Biotechnology 2 Prereq PharS 444. Pharmacological and pharmaceutical properties of drugs and therapies derived from biotechnology.
541P Quality Assurance 1 Prereq PharP 531, PharS 433. Continual quality improvement and a survey of selected quality assurance programs in the pharmaceutical industry and institutional pharmacy practice.

Pharmacy Practice PharP

217 Drugs in Our Society 2 For nonmajors. The use and abuse of drugs.
250 [S] The American Health Care System 3 Development of the American health care delivery system; emergence of the health care professions, insurance, hospitals, consumer advocacy, health policy formation.
450 Peer Health Advocacy 3 By interview only. Principles and techniques of peer health education and advocacy.
451 Pharmacy Practice I 1 Basic clinical skills, interpretation of patient data, problem-solving skills, professional communications, professionalism and pharmacy ethics.

454 Pharmacy Practice III 4 Prereq PharS 433, 437, 442. Professional competence in applying principles of pharmacuetics, medicinal chemistry, and pharmacology to selecting therapeutic products, dispensing procedures.
461 Community Practice Externship V 1 (0-5) to 7 (0-21) Prereq PharP 454, 474. Practical professional experience in community pharmacy setting under the supervision of an approved pharmacist preceptor. S, F grading.
462 Institutional Pharmacy Externship V 1 (0-5) to 7 (0-21) Prereq PharP 454, 474. Practical professional experience in an institutional pharmacy setting under the supervision of an approved pharmacist preceptor. S, F grading.

500 Introduction to the Health Care System 3 Orientation to history and organization of the health care system.
502 Health Care Ethics 3 Ethical issues affecting health care institutions, professionals and consumers.

Health Policy and Administration Courses

Description of Courses

Health Policy and Administration

HPA

455 The Economics of Health Care 3 Same as Econ 455.
500 Introduction to the Health Care System 3 Orientation to history and organization of the health care system.
502 Health Care Ethics 3 Ethical issues affecting health care institutions, professionals and consumers.
503 Research and Evaluation Methods 3 Prereq statistics. Basic research and evaluation meth-ods for health care professionals.


505 Comparative International Health Care 3 Analysis of key attributes of health care in selected countries and comparisons with the US health care system.

506 Rural Health Care in America 3 The unique characteristics, professional opportunities, problems and reform alternatives in rural health care.

507 Health Care Finance 3 Prereq Accctg course. Aspects of health care financial management fundamentals and managerial accounting for strategic financial management.

508 Managed Care/Integrated Delivery Systems 3 Prereq HPA 500, 507. Business, regulatory and liability issues in field of managed care.

509 Health Care Information Systems 3 Prereq HPA 500. Key attributes of health care information systems and their evolution in health care environment.

511 Health Care Law 3 Prereq HPA 500. Review of the structure and function of the legal system and how it affects health care.

512 Aging and Long-term Care Administration 3 Prereq HPA 500. Introduction to issues in population aging and requirements for administration of aging and long-term care programs.

513 Innovative Leadership and Management 3, 4 (3-3), or 5 (3-6). Same as Nurs 513.

514 Women’s Health: Social, Psychological, and Physiological Issues 2 Contemporary issues in women’s health focusing on physiological, social and psychological aspects.

570 Quality Management 3 Same as E M 570.

597 Internship 5 Prereq HPA 501, 503. Professional experience in a health-related organization under faculty and mentor supervision.

598 Seminar in Health Policy and Administration 1 May be repeated for credit; cumulative maximum 4 hours. Prereq HPA 500. Major problems and research issues in field; dialogue among students and experts.

599 Special Topics in Health Policy and Administration V 1-3 May be repeated for credit; cumulative maximum 9 hours.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Masters’ Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Masters’ Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

Department of Philosophy

Associate Professor and Department Chair, M. R. Neville; Professors, J. E. Broyles, H. S. Silverstein; Associate Professors, D. M. Holbrook, M. Myers; Assistant Professors, J. K. Campbell, D. L. Shier.

The Department of Philosophy offers courses which provide the student with an introduction to fundamental intellectual problems and both classical and contemporary attempts at their solutions. Students are encouraged to develop their own critical faculties. The department offers a course of study leading to the degree of Bachelor of Arts in Philosophy and to a supporting endorsement in education.

Degree Program Requirements

At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses.

The first two years requirements are common to both philosophy degree programs:

FIRST AND SECOND YEAR REQUIREMENTS

Freshman Year

First Semester Hours
Arts & Humanities [H,G] (GER) 3
Degree Program Course 1
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3

Second Semester Hours
Communications [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Phil 201 3
Social Sciences [S,K] (GER) 3
Tier 1 Science [Q] (GER) 3

Sophomore Year

First Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological Sciences [B] (GER) 4
Degree Program Course 1
Foreign Language, if necessary, or Elective 4
Elective 1

Second Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Degree Program Course 1
Foreign Language, if necessary, or Elective 4
Physical Sciences [P] (GER) 4
Science Elective 1

1For Philosophy/Pre-Law, take Phil 260, and two Phil Electives; for Traditional Philosophy, take Phil 101, 290, and 305.

PHILOSOPHY/PRE-LAW DEGREE PROGRAM (120 HOURS) 3

Junior Year

First Semester Hours
Arts & Humanities [H,G] or Social Science [S,K] (GER) 3
Intercultural [I,G,K] (GER) 3
Phil 360, 365, or 370 3
Pol & 300 3
Elective 3
Complete Writing Portfolio

Second Semester Hours
Engl 301 [W] (GER) 3
Phil 445, 460, or 470 3
Tier III Capstone (GER) 3
Elective 6

Senior Year

First Semester Hours
Phil Electives 6
Electives 9

Second Semester Hours
Phil Electives 6
Electives 9

TRADITIONAL PHILOSOPHY DEGREE PROGRAM (120 HOURS) 3

Junior Year

First Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Intercultural [I,G,K] (GER) 3
Phil 310 or 420 3
Phil 335 or 340 3
Elective 3

Second Semester Hours
Phil 325 3
Phil 445 or 460 3
Tier III Capstone (GER) 3
Elective 6

Senior Year

First Semester Hours
Phil Electives 6
Electives 9

Second Semester Hours
Phil Elective 3
Electives 12

The undergraduate minor consists of 16 hours of course work, at least 8 of which must be in 300-400-level courses. Courses are chosen by the student, in consultation with the department, but will normally include Phil 101 and will always include Phil 201.

Description of Courses

Phil

101 [H] Introduction to Philosophy 3 Nature and place of philosophy in human thought; problems and achievements.

102 (200) [W] Writing and Reasoning 3 Application of critical thinking skills to essay writing.

195 [H] Philosophy Honors 3 1

201 [H] Elementary Logic 3 Analysis and evaluation of deductive and non-deductive arguments.

207 [H] Philosophy of Religion 3 Western religious thought, nature and knowledge of God, relations to science, morality, and society.

220 [H] Aesthetics 3 Analysis of aesthetic experience; applications to art and nature; criteria of art criticism.

260 [H] Introduction to Ethics 3 Ethics through analysis of contemporary moral and social issues.

290 [H] History of Ancient and Medieval Philosophy 3 Pre-Socratics, Plato, Aristotle; post-Aristotelian philosophy to the Renaissance. Cooperative course taught jointly by WSU and UI (Phil 309).

305 [H] History of Modern Philosophy 3 Renaissance, 17th and 18th century philosophers. Cooperative course taught jointly by WSU and UI (Phil 310).

1Open only to students in the Honors Program.
310 [H] Nineteenth-century Philosophy 3 Focus on the Continental tradition in philosophy.
314 [G] [M] Philosophies and Religions of India 3 Prereq 3 hours Phil. Metaphysical, epistemological, ethical, aesthetic, social, and political views of Hinduism, Buddhism, and Islam, and their influence on Indian civilization.
315 [G] [M] Philosophies and Religions of China and Japan 3 Prereq 3 hours Phil. The philosophies and religions of China and Japan, and their metaphysical, epistemological, ethical, social, and political positions and views of God and gods.
325 [M] 20th Century Philosophy 3 Prereq 3 hours Phil. Selected major philosophers and movements; pragmatism and analytic philosophy.
335 [M] Seminar in Theory of Knowledge 3 Prereq 3 hours Phil. Problems of immediate knowledge and mediate knowledge, modes of cognition. Cooperative course taught jointly by WSU and UI (Phil 431).
340 [M] Seminar in Metaphysics 3 Prereq 3 hours Phil. Theories of self, world, God, nature of being. Cooperative course taught jointly by WSU and UI (Phil 311).
350 [H] Philosophy of Science 3 Purpose and logical structure of science; human implications. Cooperative course taught jointly by WSU and UI (Phil 412).
360 Business Ethics 3 The principles of ethics as applied to specific problems in business faced by individuals and corporate institutions.
365 [H] Biomedical Ethics 3 Ethical problems in medicine and biological research.
370 [H] Environmental Ethics 3 The place of humans in nature and human obligations to nature, if any.
375 [M] Women and Ethics 3 Same as WS St 375.
390 Topics in Philosophy 3 May be repeated for credit; cumulative maximum 6 hours.
401 Seminar in Symbolic Logic 3 Prereq Phil 201. Cooperative course taught by WSU, open to UI students (Phil 402).
407 Seminar in Religious Studies 3 May be repeated for credit; cumulative maximum 6 hours. Senior seminar for majors in religious studies.
418 Philosophy of Biology 3 Prereq 3 hours Phil. 3 hours Bio S. Conceptual problems and value questions in defining biology as a human endeavor and in defining its scope and its aims. Cooperative course taught by UI (Phil 418), open to WSU students.
420 Contemporary Continental Philosophy 3 Prereq 3 hours Phil. Twentieth-century European movements in philosophy; phenomenology, existentialism, structuralism, deconstructionism, and others. Cooperative course taught by WSU, open to UI students (Phil 420).
430 [H] Philosophy of Art 3 Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence. Philosophical exploration of any or all of the arts, emphasis on value considerations and comparisons of differing media.
445 [M] Seminar in Social and Political Philosophy 3 Prereq 3 hours Phil. Problems of normative social and political theories; historical and contemporary philosophers. Cooperative course taught jointly by WSU and UI (Phil 411).
450 [M] Seminar in Philosophical Psychology 3 Prereq 3 hours Phil. Theories of mind, self, mental acts, psychological states and human actions. Cooperative course taught jointly by WSU and UI (Phil 442).
460 [M] Seminar in Ethical Theory 3 Prereq 3 hours in Phil. Problems of ethical theory as treated by historical and contemporary philosophers. Cooperative course taught jointly by WSU and UI (Phil 414).
465 Reverence For Life 1 or 2 Same as V Ph 465.
470 Philosophy of Law 3 Prereq 3 hours Phil. Selected topics pertaining to moral and philosophical evaluation of law. Cooperative course taught by UI (Phil 410), open to WSU students.
499 Special Projects or Independent Study Variable credit. S, F grading.

Physical Science Courses

Description of Courses

Physical Science
Ph S
298 Physical Science Honors 4 (3-3) Concepts from cosmology, astronomy, physics, chemistry, and biochemistry; how matter evolved from the Big Bang to intelligent life forms.
430 Methods of Teaching Physical Science 3 (2-3) Prereq T & L 303; 12 hours science. Methods, philosophy, and structure of science; application in teaching middle/secondary school physical science courses.

Department of Physics


Physics is the study of nature at its most fundamental level. As such it is the science upon whose principles all other sciences and technologies are based. Because it is so basic, a major in physics is ideal preparation, not only for further study in physics, but also for advanced study in such diverse fields as biophysics, medicine, astrophysics, geophysics, chemical physics, engineering, meteorology, and computer science. These same areas also offer careers for the physics major.

Courses offered by the physics department are designed to introduce the student to each of the major physical theories. Additional undergraduate courses use these theories to investigate such topics as optics, atomic physics, nuclear physics, solid state physics, astrophysics, and geophysics. The student tests the theories in laboratories and learns some of the standard experimental techniques needed to work with modern apparatus such as computers, high-vacuum equipment, lasers, electronic and optical devices, and accelerators. Active research programs, supported in part by federal grants and contracts, are being pursued in the following fields: acoustics (scattering, nonlinear processes, and levitation); astronomy (luminosity calibration, spectroscopy, statistics); nuclear physics (meson capture and nuclear absorption phenomena); optical physics (high-power femtosecond lasers, scattering from doped polymers, nonlinear optics, quantum electronics, Fourier spectroscopy, diffraction catastrophes); physics education (use of microcomputers in teaching and labs); nuclear solid state physics (Mössbauer effect, perturbed angular correlations, positron annihilation studies); shock wave and high pressure physics (chemical and structural response of condensed materials to high dynamic pressures, time-resolved optical spectroscopy, shock and detonation wave propagation, chemical reactions, dynamic mechanical failure); surface and chemical physics (synchrotron SAFS, diamond films, molecular interactions with surfaces, reactive etching of surfaces, photovoltaic and thermal emission microscopy); theory (quantum theories of measurement and state preparation, phase transitions and critical phenomena, quantum liquids, equations of state, energy sources and environment). These research groups offer graduate students the opportunity to pursue the original investigations required for advanced degrees. Undergraduate physics majors are encouraged to participate in research through the special problems course (Phys 499) and through part-time jobs that are sometimes available.

The department offers courses of study leading to the degrees of Bachelor of Science in Physics, Master of Science in Physics, and Doctor of Philosophy (Physics). The Department of Physics is a major participant in the Program in Materials Science and offers courses and research opportunities leading to degrees in this interdisciplinary program.

Degree Program Requirements

The Department of Physics has developed a variety of options for students seeking a major in physics. For most of these options, the program in the first two years is the same. Differences in these will appear as footnotes. The program of courses below is appropriate for students who have had a good experience with calculus and wish to study physics in the first semester at WSU (even though the student may be placed in Math 171, if their high school grades for the year course were B or better they may follow this schedule of study). Students who have placed in Math 172 can accelerate the math sequence. A student who has not had calculus in high school should defer Phys 201 to the spring semester or until they have completed Math 171. Upon consultation with the departmental advisor, modifications can be made in the list of required courses to fit the needs of individual students. Note that in all the programs that follow, the minors listed are possible if the student applies to the respective department before graduation. The minors are never automatic-
Under classes should be taken:

- Physics Education: SpCom 102, T & L 300.
- Optics and Electronics, Technical Option: E E
- Environmental Option: Bio S 103, 337; Chem 340; ES/RP 335, 404, 444, 445, 499; Math Electives (6 hours); Phys 320, 341, 342, 410, 415 [M]; 450, 463, 465, 490 [M].

**Standard Program**
This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics.

**Astrophysics Program**
This program yields a Bachelor of Science in Physics Degree with a major in Mathematics and Astronomy.

**Biophysics Program**
This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics and possibly Biochemistry.

**Computer Physics Program**
This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics and possibly in Computer Science.

**Optics and Electronics Program**
This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics and possibly in Electrical Engineering.

**Physics Education Program**
This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics and a primary endorsement to teach Physics and a supporting endorsement to teach Mathematics.

**Technical Program**
This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics.

**Materials Science Program**
This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics and possibly in Material Science.

**Mathematical Physics Program**
This program yields a Bachelor of Science in Physics Degree with a second major in Mathematics.

**Continuum Physics and Acoustics Program**
This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics and Environmental Science.

**Approved choices include:** MATH 340, 360, 375, 401, 402, 415, 420, 444, 443, 448. (Underlined entries are recommended.)
1 One hour of 499 in an appropriate department or Physics required. Additional hours may be taken for credit.

Minor in Physics

A physics minor requires Phys 201, 202 and Phys 303, 304 plus any two courses (6 credits) from the following list: Phys 320, 330, 341, 342, 410, 412, 415, 443, 450, 461, 463, 465. This makes a total of 20 credits in Phys of which 12 are upper division. Students from outside the College of Sciences (i.e., College of Engineering) do not have to meet the extra graduation requirements of the College of Sciences.

Transfer Students

Transfer students receive credit for equivalent courses taken elsewhere, but must meet the requirements for graduation listed above.

Preparation for Graduate Study

Undergraduate students contemplating graduate work in physics should consider enrolling in Phys 443, 450, 521, 571, and additional math courses. At least one year of German, Russian, or French is also recommended.

Description of Courses

Physics

101 [P] General Physics 4 (3-3) Algebra- and trigonometry-based physics; topics in mechanics, wave phenomena, temperature, and heat; oriented toward non-physical science majors.


150 [Q] Physics and Your World 3 (2-3) Survey of physics as found in everyday phenomena; including many hands-on activities and home experiments.

201 [P] Physics for Scientists and Engineers I - Honors 5 (3-4) Prereq Math 172, Phys 201 or 205. Calculus-based physics, honors section; electricity, magnetism, light, topics in modern physics.

205 [P] Physics for Scientists and Engineers I - Honors 5 (3-4) Prereq Math 172, Phys 201 or 205. Calculus-based physics, honors section; electricity, magnetism, light, topics in modern physics.

230 Modern Physics I 3 Prereq Math 220 or c//; Phys 202. Quantum and relativity theories with applications to atomic, solid state, nuclear and elementary particle physics.

234 Electricity and Magnetism I 3 Prereq Math 315 or c//; Phys 202. Electrostatic fields, magnetic fields, dielectric and magnetic media.

235 Electricity and Magnetism II 3 Continuation of Phys 341. Maxwell’s equations; electro-magnetic waves, special relativity.

341 Principals of Astronomy 3 Same as Astr 345.


380 [P] Physics and Society 3 Interactions of physics with society; energy; air and water pollution; recycling; communications and computers; physics and war; physics and art.

385 Environmental Physics 3 Prereq Math 171; Phys 101 or 201; 102 or 202. Basic physics concepts applied to environmental problems engendered by technology; physical understanding of the earth, resources; environmental changes induced by people.

410 Electronics 3 (1-6) Prereq Phys 102 or 202. Laboratory construction and investigation of electronic circuits employed in research instruments.

412 Modern Optics Laboratory 3 (2-3) Prereq Phys 443 or c//. Fundamentals of experimental modern optics and applications in science and engineering.


435 Astronomy and Astrophysics 3 May be repeated for credit; cumulative maximum 6 hours. Same as Astr 435.

443 Optics 3 Prereq Phys 341 or c//. Polarization, interference, coherence, and diffraction phenomena of the electromagnetic spectrum; optics of solids; laser resonators; gaussian beams; ABCD matrices.

450 Introduction to Quantum Mechanics 3 Prereq Math 315; Phys 303. Introduction to quantum theory with applications to atomic physics. Cooperative course taught jointly by WSU and UI (Phys 450).

461 Introduction to Atomic and Molecular Physics 3 Prereq Phys 304. Introduction to atomic and molecular physics; spectroscopy.

463 Introduction to Solid State Physics 3 Prereq Phys 304. Introduction to the physics of solids; crystal structures, lattice vibrations, and electron theory. Cooperative course taught jointly by WSU and UI (Phys 463).


490 [M] Undergraduate Thesis 1 Preliminary thesis draft of a laboratory or library research experience, oral presentation, and final draft.

499 Special Problems 1-4 May be repeated for credit. S, F grading.

521 Classical Mechanics I 3 Prereq Phys 320; 571 or c//. Laws of motion as developed by Newton, d’Alembert, Lagrange, and Hamilton; dynamics of particles and rigid bodies. Cooperative course taught jointly by WSU and UI (Phys 521).


533 Thermodynamics 3 Prereq Math 440; Phys 330. Entropy, equilibrium, and stability; work, reversible processes, phase transitions and critical phenomena; irreversible processes and applications; introduction to statistical mechanics. Cooperative course taught jointly by WSU and UI (Phys 533).

534 Statistical Mechanics 3 Prereq Chem 531, 535; or Phys 533, 551. Fundamental theory, calculations of equilibrium properties and fluctuations, interacting systems, quantum statistics. Cooperative course taught jointly by WSU and UI (Phys 531).

538 Topics in Modern Astrophysics 3 May be repeated for credit; cumulative maximum 9 hours. Same as Astr 538.

541 Electromagnetic Theory 3 Prereq Phys 342, 571 or c//. Special relativity and the classical electromagnetic field; emission, propagation, and absorption of electromagnetic waves. Cooperative course taught jointly by WSU and UI (Phys 541).

542 Electrodynamics 3 Prereq Phys 541. Interaction of matter and electromagnetic radiation; classical and quantum electrodynamics. Cooperative course taught jointly by WSU and UI (Phys 542).

545 Nonlinear Optics 3 Prereq Phys 534, 542, 551. Nonlinear wave propagation theory applied to several nonlinear-optical phenomena; experimental techniques that probe a material’s nonlinearity.

546 Quantum Electronics 3 Prereq Phys 541, 551 or c//. The physics of lasers and of coherent optical radiation generation and propagation.

550 Quantum Theory I 3 Prereq Math 440, 441; Phys 450. Introduction to quantum theory; physical and mathematical foundations; application to atomic systems. Cooperative course taught jointly by WSU and UI (Phys 551).

551 Quantum Theory II 3 Prereq Phys 550, 571. Symmetry and invariance; angular momentum theory; approximation methods. Cooperative course taught jointly by WSU and UI (Phys 552).
552 Quantum Theory III 3 Prereq Phys 551. Scattering theory; relativistic wave mechanics; quantum field theory. Cooperative course taught jointly by WSU and UI (Phys 553).


563 Physics of the Solid State 3 Prereq Phys 534, 551. Lattice vibrations and defects; ionic and electronic conductivities; band theory; magnetic properties; luminescence. Cooperative course taught jointly by WSU and UI (Phys 563).

565 Nuclear Physics 3 Prereq Phys 465, 551. Nuclei and nuclear interactions from theoretical and experimental viewpoint, properties of nuclei, two-body problems, complex nuclei, nuclear spectroscopy, reactions, models. Cooperative course taught jointly by WSU and UI (Phys 566).

571 Methods of Theoretical Physics 3 Prereq Math 440, 441. Mathematical methods for theoretical physics; linear algebra, tensor analysis, complex variables, differential equations, integral equations, variational calculus, and group theory. Cooperative course taught jointly by WSU and UI (Phys 571).

573 Physical Applications of Group Theory 3 Prereq Phys 551. Introduction to group theory with application to atoms, molecules, solids, and elementary particles; no previous knowledge of group theory assumed. Cooperative course taught by UI (Phys 573), open to WSU students.

575 Advanced Solid State Physics 3 Prereq Phys 534, 542, 552 or c/w, 563, 571. Quantum theory of solids; Green’s functions, correlation functions and other field-theoretic methods; magnetism, superconductivity and transport properties.

581 Advanced Topics 3 May be repeated for credit; cumulative maximum 12 hours. Topics of current interest in advanced physics. Cooperative course taught jointly by WSU and UI (Phys 581).

590 Seminar 1 May be repeated for credit. S, F grading.

591 Seminar in Computational Physics 1 May be repeated for credit; cumulative maximum 4 hours. Computational physics; numerical methods and physical application to supercomputers, mainframes, mini-, and microcomputers. S, F grading.

592 Wave Propagation Seminar 2 Prereq Math 440, 441. May be repeated for credit; cumulative maximum 4 hours. Waves in the continuum; elastic, plastic, and hydrodynamic waves; shock waves. S, F grading.

593 Seminar in Physics of Condensed Matter 1 May be repeated for credit; cumulative maximum 2 hours. Experimental and theoretical methods of study of matter in the condensed state and at interfaces. S, F grading.

594 Seminar in Solid-State Physics 1 May be repeated for credit; cumulative maximum 4 hours. Topics in the physics of solids; the experimental and theoretical study of the electronic and atomic structure of materials. S, F grading.

596 Seminar in Optical Physics 1 May be repeated for credit; cumulative maximum 3 hours. Current topics in experimental and theoretical aspects of optical physics. S, F grading.

598 Teaching Undergraduate Physics Laboratories 1 May be repeated for credit; cumulative maximum 4 hours. Principles and practices of teaching, planning and management of undergraduate physics laboratories; choice and care of equipment. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Plant Pathology


Plant pathology is the study of plant diseases, including causes, economic consequences, epidemiology, and control. Opportunities for graduates in plant pathology include positions in research and development, teaching, extension, and sales. Plant pathologists are employed throughout the world by industries, governments, educational institutions, and private foundations.

A limited undergraduate program is designed to provide a broad background in the biological, physical, and agricultural sciences. However, most opportunities in plant pathology require advanced degrees. Students who intend to terminate university training with a baccalaureate degree are encouraged to enroll in the Integrated Pest Management curriculum.

The courses offered in this department are designed both to train students expecting to make plant pathology or mycology their professional field of specialization and to provide supplementary training for students in other biological and agricultural fields, particularly botany, crop science, genetics, horticulture, forestry, and entomology. Students who expect to become professional plant pathologists are advised to include in their undergraduate studies fundamental courses in bacteriology, botany, chemistry, genetics, physics, and zoology.

A professional career in plant pathology requires graduate training, and the four-year course outlined under the schedule of studies is basic for such later specialization. Students often enter advanced work in plant pathology following a major in biology, botany, crop science, genetics, horticulture, molecular biology, or similar areas as well as in plant pathology. Specialized areas of advanced study include mycology, nematology, virology, epidemiology, disease physiology, molecular biology of host-parasite relationships, ecology of disease development, biochemistry of pathogenicity, disease resistance, chemical control, and biological control. Research is conducted on diseases of grain crops, forage crops, forest trees, fruit, vegetables, ornamentals, and turf.

The department offers courses of study leading to the degrees of Bachelor of Science in Agriculture, Master of Science in Plant Pathology, and Doctor of Philosophy.

An interdisciplinary curriculum in Integrated Pest Management is available to those whose interests span the areas of plant pathology and pest management. The curriculum is described under the Entomology section of this catalog.

Degree Program Requirements

At least 40 of the total hours required for the bachelor’s degree in this program must be in the 300-400-level courses.

The following list includes the departmental requirements for the undergraduate plant pathology curriculum. Students should consult their advisors for appropriate sequencing of courses and in selecting electives consistent with vocational and professional objectives. They should also check fulfillment of University and General Education Requirements.

PLANT PATHOLOGY DEGREE PROGRAM (120 HOURS)

Freshman Year

First Semester

Bio S 103 [B] (GER) 4
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 107 3

Second Semester

Bio S 104 [B] (GER) 4
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3
Micro 101 [B] (GER) 4

Sophomore Year

First Semester

Bot 120 [B] (GER) 4
Chem 240 4
Phys 101 [P] (GER) 4
SoilS 201 3

Second Semester

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Bio S 372 4
Communication Proficiency [C,W] (GER) 3
CropS 101 3
Phys 102 [P] (GER) 4

Junior Year

First Semester

Bot 320 4
CropS 201 4
Hort 201 4
Social Sciences [S,K] (GER) 3
Complete Writing Portfolio

Second Semester

Arts & Humanities [H,G] (GER) 3
Bot 332 4
CropS 305 3
Econ 201 4
Engl 351 3

Senior Year
First Semester

Hours
Entom 340 3
GenCB 301 4
Intercultural [L,G,K] (GER) 3
Pl P 429 3
Ag Elective 3

Second Semester

Hours
Tier III Capstone (GER) 3
Ag Electives 12

The following substitutions may be allowed with departmental approval: Ag Ec 201 for Econ 201; Chem 101/102 for Chem 105/106; Entom 343 for Entom 340; H D 205 for Engl 351; Math 171 for Math 107; Micro 201 for Micro 101.

Preparation for Graduate Study

As preparation for work toward an advanced degree a student should have completed a bachelor’s degree; at least one year each of general inorganic chemistry, botany, zoology, physics, and a foreign language; one semester each of systematic botany, plant physiology, bacteriology, general plant pathology, entomology, precalculus, organic chemistry, genetics, and report writing or advanced composition.

Description of Courses

Note that most plant pathology courses are offered on an alternate year only basis.

Plant Pathology

PI P

309 Fundamentals of Plant Pathology 3 (2-3)
Prereq Bio S 102 or Bot 120. Concepts and terminology associated with the classification, symptoms, causes, development, and control of plant diseases associated with irrigated crop production.

331 Forest Pathology 2 (0-6)
Prereq Bio S 103. Parasitic and nonparasitic diseases of forest and shade trees; life histories of fungi as related to diseases.

421 General Mycology 4 (2-6)
Rec Bio S 103 or Bot 120. The structure, life histories, classification, and economic importance of the fungi. Credit not granted for both PI P 421 and 521. Cooperative course taught by WSU, open to UI students (PlSc 421).

429 General Plant Pathology 3 (2-3)
Rec Bio S 103 or Bot 120. Classification, symptoms, causes, epidemiology, and control of plant diseases. Credit not granted for both PI P 429 and 529.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

511 Viruses and Virus Diseases of Plants 4 (3-3)
Prereq course in biochem or adv genetics. Nature of plant viruses, vector-virus relationships and virus diseases of plants. Cooperative course taught jointly by WSU and UI (PlSc 511).

513 Nematodes and Nematode Diseases of Plants 2 (1-3)
Prereq PI P 429. Anatomy, identity, and diseases caused by nematodes; techniques and control.

514 Phytopathology 4 (3-3)
Prereq BC/BP 364; Micro 201. Isolation and characterization of bacteria having a saprophytic, symbiotic or pathogenic association with plants, molecular structure, function, and genetics. Cooperative course taught by WSU, open UI students (PlSc 514).

515 Seminar 1 May be repeated for credit.

521 General Mycology 4 (2-6)
Graduate-level counterpart of PI P 421; additional requirements. Credit not granted for both PI P 421 and 521.

522 Basidiomycetes 3 (2-3)
Prereq PI P 421. Taxonomy, physiology, and reproduction of rusts, jelly fungi, smuts, and higher basidiomycetes. Cooperative course taught by WSU, open to UI students (PlSc 521).

523 Ascomycetes and Fungi Imperfecti 3 (1-6)
Prereq PI P 421. Taxonomy, phylogeny, physiology, reproduction of ascomycetes, and fungi imperfecti. Cooperative course taught by WSU, open to UI students (Bot 576).

524 Lower Fungi 2 (1-3)
Prereq PI P 421. Taxonomy, phylogeny, physiology, and reproduction of aquatic and terrestrial phloymycetes and myxomycetes. Cooperative course taught by WSU, open to UI students (Bot 577).

525 Field Plant Pathology and Mycology 1 (0-3) or 2 (0-6) May be repeated for credit; cumulative maximum 4 hours. Rec plant pathology and/or mycology course; by interview only. Field trips, forays, and demonstrations dealing with various aspects of plant pathology and mycology.

529 General Plant Pathology 3 (2-3)
Graduate-level counterpart of PI P 429; additional requirements. Credit not granted for both PI P 429 and 529.

534 Fungal Genetics 4 (3-3)
Prereq GenCB 301. Classical and molecular approaches to genetic analyses in fungi.

535 Molecular Genetics of Plant and Pathogen Interactions 2 Prereq BC/BP 364, GenCB 301. Genetic and molecular biological aspects of host-pathogen interactions. Cooperative course taught by WSU, open to UI students (PlSc 535).

541 Analytical Methods for Phytopathological Research 3 (2-3)
Prereq Micro 201 or PI P 429. Survey of research techniques in plant pathology, including history and principles. Cooperative course taught by UI (PlSc 541), open to WSU students.

551 (501) Diseases of Plants 4 (3-3)

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Program in Plant Physiology


Graduate study leading to degrees of Master of Science in Plant Physiology and Doctor of Philosophy is offered as an interdepartmental curriculum by the graduate faculty from the Departments of Crop and Soil Science, Biochemistry and Biophysics, Botany, Genetics and Cell Biology, Horticulture and Landscape Architecture, Plant Pathology, and the Institute of Biological Chemistry. The objectives of the program are to provide the graduate student with a broad knowledge in plant physiology and with research experience in a chosen area within this discipline. Specialization includes cellular and subcellular physiology, the molecular biology and biochemistry of plant-related processes, photosynthesis and photorespiration, nitrogen fixation, phytochemistry, the physiology of vascular plants, metabolism, plant pathogen interactions, hormonal interactions and regulation of growth, crop production physiology, and physiological ecology as well as related areas in agriculture and biology.

Students entering the program must have completed their baccalaureate degree with training in one year each of elementary biology or botany, and physics, chemistry through one semester of organic chemistry, one semester each of plant physiology and genetics, and mathematics (through calculus). Limited undergraduate deficiencies may be remedied by taking the appropriate courses upon enrollment in the graduate program on a provisional basis. Degree requirements for both the MS and PhD degrees include courses in advanced plant physiology, plant morphology and anatomy, and biochemistry. To meet the minimum requirements of core course credit in the Graduate School, elective courses are chosen as approved by the student’s advisor and the supervising committee of graduate faculty. There is no foreign language requirement.

Policies and procedures of the Graduate School apply to all admissions. Interested students may direct their inquiries to the Program in Plant Physiology. Financial support for students in the program is available in the cooperating academic units. Should the latter route be followed, preference for the Program in Plant Physiology must be indicated and, if possible, the research area of interest identified.

The program offers flexibility for students with varied backgrounds in chemistry, biochemistry, plant physiology, molecular biology, botany, genetics, biology, and the agricultural sciences to pursue advanced training in plant physiology, with independent study and original research in areas of the student’s own interests as the single most important component. The interdisciplinary nature of the program assures the student of interaction with plant physiologists and plant scientists representing a wide range of research interests and provides the student with a broad choice of specialized facilities which are available in the cooperating academic units.

Financial support for students in the program is determined within the administering academic unit and not by plant physiology. Participating faculty may provide support through individual grants and contracts. Every effort will be made to inform applicants of these opportunities.

Course requirements are drawn from existing courses offered by cooperating departments and
programs. In addition, a seminar is held weekly during each semester.

**Description of Courses**

**PhD**

515 Seminar in Plant Physiology 1 May be repeated for credit; cumulative maximum 4 hours. A cross-discipline seminar, including botany, crop and soils sciences, horticulture, plant pathology, and plant physiology.

561 Biochemical Signaling 2 Same as BC/BP 561.

587 Advanced Topics in Plant Biochemistry 2 Same as BC/BP 587.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Dissertation and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation and/or Examination Variable credit. S, F grading.

**Department of Political Science**

*Department Chair, L. LeLoup; Professors, T. Cook, M. Cottam, N. Lovrich, O. Marenin, D. Nice, J. Pierce, C. Sheldon, T. Tsuturani; Associate Professors, C. Clayton, G. Russell (Criminal Justice Director), L. Simon, B. Steel, Q. Thurman; Assistant Professors, A. Appleton, R. Jackson, C. Long, F. Latze, A. Mazur (Graduate Director), M. Newman, T. Preston, A. Saine, S. Stehr, E. Weber; Instructor, M. Erp.*

Courses in political science are offered in political institutions (presidency, congress, the courts, political parties, mass media), public policy formation and evaluation, public law, civil liberties, international relations (foreign policy, strategic policy, conflict resolution), comparative government (area studies, post-industrial societies, cross-national comparisons), political philosophy and methodology.

The department offers courses of study leading to the degrees of Bachelor of Arts in Political Science, Master of Arts in Political Science, and Doctor of Philosophy.

The department is the locus of the Criminal Justice Program, which offers courses of study leading to the Bachelor of Arts in Criminal Justice and the Master of Arts in Criminal Justice. For details, see the criminal justice section of this catalog.

**Prelaw Studies**

No specific major is required to be eligible for law school. The department’s Prelaw Advising Center assists all students interested in law school regardless of their intended major.

Through its prelaw curriculum, the department offers a selection of courses designed to prepare students adequately for law school and eventual careers in law. This curriculum reflects recommendations of the Association of American Law Schools. Students choosing other departmental options are also eligible to attend law school if they meet admission requirements.

**Public Service**

Government is the nation’s largest employer. Many public officials are political science graduates. The department advises students concerning training and career opportunities in federal, state, and local governments, the foreign service, and related occupations. Its extensive internship program places students in public agencies, political parties, and similar organizations. The department also encourages and advises students on study abroad as part of preparing for careers in international affairs.

**Division of Governmental Studies and Services**

The department’s Division of Governmental Studies and Services (DGSS) is an instrument for extending beyond the classroom and into public service the resources represented in the department’s teaching and research personnel. Functions of the division include performing research and issuing publications relating to government and public affairs; providing training and consulting services to public agencies and private organizations concerned with public affairs; and administering internship programs to provide practical experience in government. DGSS maintains a collection of specialized government publications and related materials and, in general, acts as a link between teaching and the conduct of public affairs.

**Teaching**

Students may obtain the bachelor’s degree in political science while meeting the requirements for a Washington teaching certificate. Further details can be obtained from the department.

**Minor and Second Major**

A minimum of 18 semester hours of political science coursework, half of which must be in 300-400-level courses. The courses may not be taken pass, fail. Students must successfully complete Pol S 101, 102, and 103. At least 12 semester hours of political science must be earned at Washington State University. Three hours of Pol S 497 or 499 may be applied to the minor. A minimum g.p.a. of 2.0 in the political science courses is required.

**Preparation for Graduate Study**

Students with some undergraduate coursework in political science while majoring in such subjects as economics, business administration, history, criminal justice or sociology may readily pursue graduate study in political science. Undergraduates at other institutions or in other departments at this institution who contemplate graduate work in this department should acquire some training in political science. For graduate study and its graduate degree programs, the department clusters its courses in three subfields: American institutions and processes; foreign systems and world politics; and administration, justice, and applied policy studies.

**Degree Program Requirements**

At least 40 of the total hours required for the bachelor’s degree in these programs must be in 300-400-level courses.

Students wishing to enroll in Pol S 499 must have at least junior standing and consent of the instructor; no more than 3 hours of 499 or 3 hours of 497 may be counted towards the departmental requirements.

**GENERAL POLITICAL SCIENCE DEGREE PROGRAM (123 HOURS)**

36 hours in Pol S, at least 15 of which must be earned at WSU required.

**Freshman Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Pol S 101 [S] (GER)</td>
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</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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**Second Semester**

<table>
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<th>Course Code</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td></td>
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<tr>
<td>Communication [C,W] (GER)</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
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<td>Pol S 102 [S] (GER)</td>
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**Sophomore Year**

**First Semester**

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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Foreign Language, if necessary, or Elective</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Science Elective</td>
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<tr>
<td>Tier I Science [QJ] (GER)</td>
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**Second Semester**

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<tr>
<th>Course Code</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
<td></td>
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<tr>
<td>Biological [B] Sciences (GER)</td>
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<tr>
<td>Foreign Language, if necessary, or Elective</td>
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<tr>
<td>Pol S Elective²</td>
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**Junior Year**

**First Semester**

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<tr>
<td>300-400-level Arts &amp; Humanities or Social Sciences Elective</td>
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<tr>
<td>300-400-level Pol S Elective [M]</td>
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<td></td>
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<tr>
<td>Physical [P] Sciences (GER)</td>
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**Second Semester**

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<th>Course Code</th>
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<tr>
<td>300-400-level Arts &amp; Humanities or Social Sciences Elective</td>
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<tr>
<td>300-400-level Pol S Elective [M]</td>
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<tr>
<td>Cpt S (GER) Stat Elective⁴</td>
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<tr>
<td>Engl 201 [W], 301 [W], or 402 [W] (GER)</td>
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<td>Pol S Elective⁵</td>
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**Senior Year**

**First Semester**

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<th>Course Code</th>
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<tr>
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<tr>
<td>300-400-level Elective</td>
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<tr>
<td>300-400-level Pol S Elective</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Notes</th>
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<tbody>
<tr>
<td>300-400-level Arts &amp; Humanities or Social Sciences Elective</td>
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<tr>
<td>300-400-level Elective</td>
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<tr>
<td>300-400-level Pol S Elective</td>
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</table>
## PRE-LAW DEGREE PROGRAM (120 HOURS)

**FYDA**

24 hours in Pol S required. 21 of the 42 required hours of course work must be earned at WSU.

### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Pol S 101</td>
<td>3</td>
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<tr>
<td>Science Elective</td>
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<tr>
<td>Tier I Science [Q] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Econ 101 [S] or 102 [S] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Pol S 102</td>
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### Sophomore Year

<table>
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<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>Crm J 101</td>
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<tr>
<td>Phil 201</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Pol S 103</td>
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<td>Elective</td>
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<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 201 or 301 [W] (GER)</td>
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<tr>
<td>Pol S 300</td>
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<tr>
<td>Pol S [M] Course Elective</td>
<td>3</td>
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<tr>
<td>Public Speaking or Argumentation Elective</td>
<td>3</td>
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### Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 402</td>
<td>3</td>
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<tr>
<td>Crm J 320 or 420</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Pol S 404 [M] (GER)</td>
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<td>Pol S Elective</td>
<td>3</td>
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<tr>
<td>Electives</td>
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### Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>Pol S 443</td>
<td>3</td>
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<td>Electives</td>
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1 American Politics, see department
2 Comparative or International Relations, see department
3 Policy and Public Administration, see department
4 Recommended

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### Second Semester | Hours |
<table>
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<tr>
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<tbody>
<tr>
<td>Tier III Capstone (GER)</td>
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<tr>
<td>Electives</td>
<td>12</td>
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Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and the 1-credit Science Elective

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**TEACHER EDUCATION DEGREE PROGRAM (120 HOURS)**

**FYDA**

33 hours in Pol S required. Students in this option must also add education as a second major, preferably during their sophomore year, and must meet the specific requirements for that major as established by the College of Education.

### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 101</td>
<td>3</td>
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<tr>
<td>Science Elective</td>
<td>1</td>
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<tr>
<td>Tier I Science [Q] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Pol S 102</td>
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<td>Pol S 103</td>
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### Sophomore Year

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<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Hist 101 [H] (GER)</td>
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<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Pol S 103</td>
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<td>Pol S 300</td>
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### Junior Year

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<tr>
<td>Hist 111 [S] (GER)</td>
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<tr>
<td>One from: Hist 230 [K], 231 [K], 270 [K], 272 [I], 273 [G], 275 [K]</td>
<td>3</td>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Pol S [M] Course Elective</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<th>Second Semester</th>
<th>Hours</th>
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<td>Hist 422</td>
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<td>Hist 480</td>
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<td>Pol S 438 [M]</td>
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### Senior Year

<table>
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<tbody>
<tr>
<td>300-400-level Hist Elective</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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1 Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and the 1-credit Science Elective.
International Politics
Pol S
418 Human Issues in International Development 3 Same as Anth 418.
424 National Security Policy 3 Substantive and theoretical research on issues relevant to formulation and requirements of post-Cold War, US national security and defense policy.
427 [M] United States Foreign Relations 3 Ends and means in foreign policy; organization, management, control, and current policy issues.
430 Politics of Natural Resource and Environmental Policy 3 Issues and problems of natural resource and environmental policy.
460 [M] Politics of the Third World 3 Issues and problems of political development and international relations common among developing nations.
530 Seminar in Theoretical Approaches to International Relations 3 Group dynamics, systems analysis, decision making, communications models, game theory, simulations, and rationality models. Cooperative course taught by WSU, open to UI students (PolSc 501).
531 Seminar in International Security 3 International security and arms control policies, negotiations, agreements. Cooperative course taught by WSU; open to UI students (PolSc 501).
532 Seminar in International Political Economy 3 Institutions, politics, and decision-making processes in managing international economic relations.
533 (544) Topics in Political Psychology 3 May be repeated for credit; cumulative maximum 6 hours. Psychological influences on political decision making, bargaining, conflict, and conflict resolution options.
538 International Development and Human Resources 3 Same as Anth 519.

Public Policy
Pol S
305 [S] Gender and Politics 3 Role of gender in political behavior; voting and political participation; women as subjects and objects of political systems.
316 American Public Policy 3 Institutions, processes, and substantive issues of American public policy and policy formation.
317 Mass Media and the Political Process 3 Relationship between the media and American political institutions and the public.
324 [I] Black Politics 3 Political culture, roles, and strategies of Black people in the United States; impact upon public policy.
381 Justice, Law, and the Media 3 (2-2) Same as Crm J 381.
416 Policy Analysis 3 Analysis of public policy formulation, evaluation and implementation.
417 The Electorate 3 Measurement and interpretation of electoral behavior; factors influencing the electorate; voter competence; representation of the electorate.
420 Political Parties and Pressure Groups 3 Theories of parties; characteristics of American parties; organization and behavior of pressure groups.

428 Introduction to Political Psychology 3 Prereq Pol S 101 or Psych 105. Introduction to the ways in which psychological factors influence political phenomena.
448 Urban Politics and Policy 3 Urban political processes and policies; intergovernmental relationships; impact of urban reform.
450 The Legislative Process 3 Role of legislatures in a democratic system; problems of representation; election and tenure of lawmakers; legislative organization and procedures.
455 The Presidency 3 Organization and processes of executive institutions at the national level; uses and limits of executive power.
456 Political Leadership 3 An analysis of political leadership, including different conceptions of leadership, recruitment, leader-follower relations, tactics, and evaluation of leaders.
510 Seminar on American Institutions and Processes 4
511 Seminar in American Political Thought 3 May be repeated for credit; cumulative maximum 6 hours. The genesis and development of political thought in the United States.
512 Seminar in American Institutions 3 May be repeated for credit, cumulative maximum 6 hours. Origin, development, and contemporary issues in political organization and structure in the United States. S, F grading.
513 Seminar in American Political Behavior 3 May be repeated for credit, cumulative maximum 6 hours. Theoretical approaches to, and empirical analysis of, mass political behavior in the US.
514 Seminar in Public Policy 3 Examination of central questions in public policy including what is the nature of public policy, what is policy analysis, why does government intervene in society?
515 (514) Governmental Policy and Program Analysis 3 Techniques used to analyze policy alternatives and to evaluate programs; developing program objectives, management by objectives, productivity analysis, program evaluation, and policy analysis. Cooperative course taught by UI (PolSc 556), open to WSU students.
544 The Politics of Policy Process 3 American political process; policy making under the constraints of a democratic system; relationship to the (non) achievement of the public interest.
552 Administrative Law and Regulation 3 Rule-making, adjudication, and other modes of regulation of administrative agencies; judicial review and Congressional oversight of administrative acts. Cooperative course taught by UI (PolSc 552), open to WSU students.
556 Governmental Policy and Program Analysis 3 Techniques used to analyze policy alternatives and to evaluate programs; developing program objectives, management by objectives, productivity analysis, program evaluation, and policy analysis. Cooperative course taught by UI (PolSc 556), open to WSU students.

Public Administration
Pol S
340 Introduction to Public Administration 3 Prereq Pol S 101. Basic theories of administrative organization, relationships, and behavior.
443 Administrative Jurisprudence 3 Study of the origins, nature, and practice of justice and law in public administration.
445 Public Personnel Administration 3 Development of American civil service systems and concepts; problems and techniques involved in selection and management of public employees. Cooperative course taught by WSU, open to UI students (PolSc 445).

446 Public Budgeting 3 The government budget as an instrument of politics, planning and control; organizing for democratic accountability.

447 Comparative Public Administration 3 Same as Pol S 447 above.

455 The Presidency 3 Same as Pol S 455 above.

540 Proseminar in Public Administration 3 Proseminar overviewing basic theories of administrative organization, relationships, and behavior.

541 Seminar in Research Evaluation 3 Same as Crm J 540.

542 Proseminar in Administration, Justice, and Applied Policy Studies 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Pol S 340 or 445. Analytical perspectives and theoretical issues. Cooperative course taught jointly by WSU and UI (PolSc 592).

543 Topics in Public Administration and Policy 3 Prereq graduate standing. Examination of the literature on the politics of the American public policy process.

547 (501) Seminar in Public Administration 3 Cooperative course taught by WSU, open to UI students (PolSc 501).

Public Law

Pol S 300 The American Constitution 3 Prereq Pol S 101. Constitutional principles as established by the Supreme Court and related political developments.

330 Women and the Law 3 Same as W St 330.

381 Justice, Law and the Media 3 (2-2) Same as Crm J 381.

402 Civil Liberties 3 Prereq Pol S 101. Origin and development of civil liberties; responsibility of the branches of government and the people for their maintenance.


405 Comparative Criminal Justice Systems 3 Same as Pol S 405 above.

443 Administrative Regulation 3 Same as Pol S 443 above.

505 Comparative Criminal Justice Systems 3 Same as Pol S 505 above.

512 Seminar in American Institutions 3 Same as Pol S 512 above.

Special Topics

Pol S 497 Political Science Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Pol S 101 or 206; by interview only. Participation as intern in federal, state, or local governmental unit or nonprofit public organization. S, F grading.

498 Cooperative Education Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Off-campus cooperative education internship with business, industry, or government unit coordinated through the Professional Experience Program. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

597 Graduate Internship V 2 (0-6) - 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq Crm J or Pol S graduate student. Internship in federal, state, or local government unit. S, F grading.

599 Research Practicum V 1-3 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Study Abroad

Pol S 401 Topics—Study Abroad 3

403 Topics—Study Abroad 3

406 Topics—Study Abroad 3

408 Topics—Study Abroad 3

409 Topics—Study Abroad 3

410 Topics—Study Abroad 3

415 Topics—Study Abroad 3

Predential Curriculum

Associate Professor and Coordinator, D. F. Moffett; Associate Professor and Associate Coordinator, A. L. Schroeder; Advisors: Associate Professor, K. Kardong.

Preparation for dental school requires a minimum of two years of college work; however, only a few exceptional students are accepted with this abbreviated background. Since there are about three times as many applicants nationwide as there are available places in medical schools, preference is given to candidates who have attained the baccalaureate degree. The following will meet the minimum requirements of most medical schools:

1. One year of English composition.
2. One year of inorganic chemistry with lab.
3. One year of organic chemistry with lab.
4. One year of college physics with lab.
5. Mathematics through calculus.
6. One year of college biology. Additional courses in zoology and microbiology are recommended.
7. 21 or more hours of electives in the social sciences and humanities.

In addition, all premedical students must take the Medical College Admissions Test (MCAT).

Premedical students are strongly urged to include in their studies a good selection of non-science courses (e.g., history, English, philosophy, humanities, anthropology, foreign languages) of their own preference and choosing. Medical schools neither place restrictions on major area of interest nor encourage taking courses which overlap in subject matter with those in medical school. Acceptance of a student by a medical school is contingent on the satisfactory completion of at least the minimum entrance requirements of that school, attainment of a superior scholastic record, good to excellent scores on the MCAT, and possession of personal qualifications appropriate to success in the medical profession. Most schools require applicants to appear for a personal interview. In addition, letters of recommendation from several college teachers or a single composite letter written by the coordinator must strongly support the applicant. The latter is preferable.

Many medical schools welcome applications from students who have majors, or who have taken considerable work, in such diverse areas as humanities, mathematics, psychology, sociology, physics, chemistry, biochemistry, and engineering. Adequate latitude exists in the medical schools’ requirements so that the advisor usually is able to suggest a schedule of studies to meet the needs of the individual students. Medical schools also expect a good selection of non-science courses on the student’s transcript.

Additional information can be obtained from D. F. Moffett, Associate Professor and Coordinator, Premedical Curriculum, Washington State University, 236 Morrill Hall, Pullman, WA 99164-3524.

Premedical Curriculum

Associate Professor and Coordinator, D. F. Moffett; Associate Professor and Associate Coordinator, A. L. Schroeder; Advisors: Associate Professor, K. Kardong.

Preparation for medical school requires a minimum of three years of college work; however, extremely few students are accepted with this abbreviated background. Since there are about three times as many applicants nationwide as there are available places in medical schools, preference is usually given to candidates who have attained the baccalaureate degree. The following will meet the minimum requirements of most medical schools:

1. One year of English composition.
2. One year of inorganic chemistry with lab.
3. One year of organic chemistry with lab.
4. One year of college physics with lab.
5. Mathematics through calculus.
6. One year of college biology. Additional courses in zoology and microbiology are recommended.
7. 21 or more hours of electives in the social sciences and humanities.

In addition, all premedical students must take the Medical College Admissions Test (MCAT).

Premedical students are strongly urged to include in their studies a good selection of non-science courses (e.g., history, English, philosophy, humanities, anthropology, foreign languages) of their own preference and choosing. Medical schools neither place restrictions on major area of interest nor encourage taking courses which overlap in subject matter with those in medical school. Acceptance of a student by a medical school is contingent on the satisfactory completion of at least the minimum entrance requirements of that school, attainment of a superior scholastic record, good to excellent scores on the MCAT, and possession of personal qualifications appropriate to success in the medical profession. Most schools require applicants to appear for a personal interview. In addition, letters of recommendation from several college teachers or a single composite letter written by the coordinator must strongly support the applicant. The latter is preferable.

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Additional information can be obtained from D. F. Moffett, Associate Professor and Coordinator, Premedical Curriculum, Washington State University, 236 Morrill Hall, Pullman, WA 99164-3524.

Department of Psychology

Professor and Department Chair, J. W. Wright; Professors, T. A. Brigham, H. J. Cross, H. A. Dengerink, D. Dyck, G. G. Galbraith, R. J. Miller, F. K. McSweeney, B. R. Wright; Associate Professors, G. L. Burns, C. C. Chandler, M. Hendrix, J. M.
The bachelor’s degree program provides for either a major or a minor in psychology. The program for majors is designed for those who wish to study psychology as part of a liberal education; for those who plan to use their training in related vocations such as the professions, governmental organizations, business and industry, and psychological services; and for those who are preparing for graduate work in psychology. Course offerings are open to students in other departments who need a background in those aspects of psychology which are related to their respective fields. Also, it is possible to combine a major in psychology with the certificate program in alcohol studies or with a minor in alcohol studies.

Alcohol studies offers an interdisciplinary sequence of courses designed to provide a broad knowledge concerning the etiology, development, treatment, and prevention of alcohol addiction and abuse. Students work on a baccalaureate degree of their choice while also completing the requirements for either the minor or the certificate in alcohol studies.

Upon completion of the academic requirements, students pursuing the certificate in alcohol studies must complete an internship in a state-approved alcoholism treatment facility (a potential job setting). The internship provides an opportunity for integration and application of knowledge, and acquisition and honing of skills necessary for effective assessment, intervention, and prevention of alcohol addiction and abuse.

The graduate program leads to advanced degrees for qualified students who plan careers as psychologists. The course of study for the Doctor of Philosophy degree may be directed toward either a specialization in clinical or experimental psychology. The graduate training program in clinical psychology at Washington State University is accredited by the American Psychological Association.

The department offers courses of study leading to the degrees of Bachelor of Science in Psychology, Master of Science in Psychology, and Doctor of Philosophy.

Excellent facilities are available for instruction and research in psychology. There are specially designed facilities for research in learning, memory, sensory processes, perception, animal behavior, physiological psychology, social interaction, and behavior modification. Departmental facilities also include the Psychology Clinic, which is a training clinic. In addition, cooperative arrangements with other units of the university and with outside agencies and institutions make it possible for students to gain first-hand experience in research and professional work. The university maintains a comprehensive library of books and journals in psychology and related fields.

### Degree Program Requirements

At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses.

Beyond certain minimum requirements, there is flexibility in the major (and minor) program, in accordance with the needs of the individual student. A person may certify as a major after completion of 30 semester hours, math requirement with a C or better, and a cumulative g.p.a. of 2.5 or better. Students who are considering a psychology degree should, as early as possible in their academic careers, seek consultation with a faculty advisor in the Department of Psychology for assistance in planning their individual programs.

The Bachelor of Science in Psychology requires a minimum of 30 credit hours in Psych, at least 15 hours of which must be in 300-400-level courses. The student must take at least 10 credit hours of psychology in residence at WSU and must maintain at least a C average in Psych courses. Students must have two years of one foreign language in high school or take one year in college of a modern foreign language before graduation.

### Psychology Degree Program (120 Hours) ✓FYDA

**Freshman Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Bio S 102 [B] or 103 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [L,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Psych 105 [S] (GER) or 198</td>
<td>3</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Communication [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N], 171 [N], or 210 [N] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
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</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Psych 311</td>
<td>4</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>6</td>
</tr>
<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Psych 312 [M]</td>
<td>4</td>
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</table>

**Junior Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Group I Psych Elective1</td>
<td>3</td>
</tr>
<tr>
<td>Group II Psych Elective2</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>7</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td></td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Group I Psych Elective1</td>
<td>3</td>
</tr>
<tr>
<td>Group II Psych Elective2</td>
<td>3</td>
</tr>
<tr>
<td>300-400-level Non-Psych Electives</td>
<td>10</td>
</tr>
</tbody>
</table>

**Senior Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Group I Psych Elective1</td>
<td>3</td>
</tr>
<tr>
<td>Psych Elective4</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Capstone [H,G,S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>300-400-level Non-Psych Electives</td>
<td>7</td>
</tr>
</tbody>
</table>

Relevant courses include:

- 219
- 120 HOURS
- 18 credit hours in Psych; of which at least 9 must be at the beginning of the senior year.
- Required for the Psych major program.
- Recommended prior to selecting either Psych courses or supporting courses in other areas.
- Writing in the Major: Psych 312, 401, 407. Psych 312, 401 and 473 can be used as Writing in the Major and toward the 30 required Psych credits.

### Recommended Courses

One 3-hour course from Psych 445, 497, 498, 499. Psych electives will be chosen in consultation with advisor.

Numerous electives during the first two years in mathematics, biology, physics, chemistry, literature, history, philosophy, sociology, anthropology contribute substantially to the study of psychology. Again, consultation with a faculty advisor is recommended prior to selecting either Psych courses or supporting courses in other areas.

Students in the Honors Program and transfer students should ask about modifications in the above schedule for the Psych majors. Students interested in combining a Psych major with the certificate program in Alcohol Studies should inquire at the office of the Department of Psychology.

### Minors

**Minor in Psychology:** The minor in Psych may be certified after the completion of 90 semester hours, at the beginning of the senior year. It requires 18 credit hours in Psych; of which at least 9 must be in 300-400-level courses.

- Psych 105 or 198 and Psych 312 are required; electives must be chosen in consultation with a psychology advisor.

**Teaching Minor in Psychology:** For the Psych minor in secondary school teaching, see the Teaching and Learning section of this catalog.

### Certificate in Alcohol Studies

Students must complete all requirements for the minor in alcohol studies plus AlcSt 447 and S W 490. Students must obtain a grade of C or better in each of the required and recommended courses in order to enroll in S W 490 and to qualify for the alcohol studies certificate.

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Preparation for Graduate Study

Students who contemplate work leading to advanced degrees are urged to confer as early as possible with a psychology faculty advisor. Graduate programs in psychology require a solid background in mathematics, natural sciences, physics, philosophy, and social sciences as well as appropriate preparation in psychology itself.

Description of Courses

Psychology

Psych 105 [S] Introductory Psychology 3 Contempora-
yousyology; biological, social, and
physical influences on normal and abnormal
human behavior.
198 [S] Psychology Honors 3 May substitute for
Psych 105 as a prereq to later courses. 
220 Psychology of Stress 3 Prereq Psych 105.
Causes and characteristics of stress; stress pre-
vention and management; psychological as-
pects of health and illness.
230 Human Sexuality 3 Prereq Psych 105. Sexu-
ality in personal development; personal, cul-
tural, biological influences on sexual identifi-
cation and behavior; fertility, reproduction,
sexual functioning, sexuality and personality.
301 Seminar in Psychology V 1-3 May be re-
peated for credit; cumulative maximum 6
hours. Prereq 6 hours Psych.
306 Industrial/Organizational Psychology 3
Prereq Psych 105. Individual and group goals;
organizational structure and theory; leader-
ship, design of jobs; personnel selection and
training; engineering psychology.
307 Human Factors 3 Prereq Psych 105 or eng.
major. Human limitations and capabilities in
architectural and engineering design; system
analysis.
310 Pseudoscience and Human Behavior 3 Prereq
Psych 105. Evaluation of scientific claims in
the behavioral sciences and everyday life.
311 Elementary Statistics in Psychology 4
Prereq Math 101, 107, 140, 201, 202,
210, or 222 with a C or better. Descriptive sta-
tistics, probability, and inference; design and
interpretation of research.
312 [M] Experimental Methods in Psychology 4
(3-3) Prereq Psych 105; Psych 311 or Stat
course. Designing, conducting, and reporting
research in selected areas of experimental psy-
chology.
321 Introduction to Personality 3 Prereq Psych
105. Theories, concepts, methods, discoveries
in psychology of personality.
324 [S] Psychology of Women 3 Prereq Psych 105.
Socialization and sex roles of women; a
psychological perspective.
328 [M] Self Control 3 Prereq Psych 105. Analysis
of self-control problems; application of behav-
ioral principles to student-conducted projects.
333 Abnormal Psychology 3 Prereq Psych 321; 6
hours Psych. Problems of abnormality from
traditional and evolving points of view; types,
therapies, outcomes, preventive techniques.
350 [S] Social Psychology 3 Prereq Psych 105 or
Soc 101. Attitude changes, conformity, inter-
personal relations, groups and social influences
explored to give a coherent view of social psy-
chology.
361 Principles of Development 3 Prereq Psych
105. Major theories of development; contribu-
tion of biological and environmental factors;
relationship of these factors to child-rearing
and social issues.
363 Psychology of Aging 3 Prereq Bio S course;
Psych 105. Psychological processes of aging;
changes in sensory motor, cognitive motiva-
tional and personality characteristics; research
methodologies for the study of aging.
365 Problems of Alcohol Addiction and Abuse 3
Prereq Psych 105 or Soc 101. Current theories
of etiology and epidemiology of alcoholism
and alcohol abuse; treatment and prevention.
366 Treatment Approaches in Alcohol Abuse/Al-
coholism 3 Prereq Psych 365. Psychosocial,
medical, pharmacological treatment modalities;
criteria for assessment/diagnosis; treatment
plan; case management; family involvement;
difficult support systems; aftercare plans.
372 Introduction to Physiological Psychology 3
Prereq Bio S 102 or 103; Psych 105. Func-
tional relationship between nervous system and
behavior; integrated organ systems, sen-
sory processes, and investigative procedures.
384 Psychology of Perception 3 Prereq Psych 105.
Perception of size, depth, form, shape; illu-
sions, contrast; historical and modern theories
and research; applications and demonstrations.
390 Operant Behavior 3 Prereq Psych 105. Prin-
ciples of operant and classical conditioning.
401 [M] Historical Development of Psychology 3
Prereq Psych 312. Concepts, methods, theo-
ries, trends, and systems.
412 Psychological Testing and Measurement 3
Prereq Psych 311. Assessment of behavioral
variables in humans; individual differences.
Cooperative course taught by WSU, open to
UI students (Psych 412).
440 [M] Clinical/Community Psychology 3
Prereq Psych 333. Professional problems;
theory, training, relations with clients, institu-
tions, public.
444 Basic Helping Skills 2 (0-6) Prereq 6 hours
Psych; sophomore standing. By interview
only. Training in basic skills to work with var-
tied types of clients; didactic and role play in-
struction. S, F grading.
445 Undergraduate Practicum V 1 (0-3) to 3
(0-9) May be repeated for credit; cumulative
maximum 6 hours. Prereq 6 hours Psych;
sophomore standing. By interview only. Su-
ervised experience in local and county agen-
ties; aftercare plans. S, F grading.
463 Psychological Disorders of Children 3
Prereq Psych 361. Intellectual and emotional
disorders of children.
466 Environmental Psychology 3 Prereq Psych
105. Psychological concepts applied to the mix-
ture of positive and negative interactions indi-
viduals have with their physical environment.
470 Motivation 3 Prereq Psych 105. Different mo-
tivational systems; analysis of environmental
and biological factors influencing motivation,
with emphasis on human motivation.
473 [M] Advanced Physiological Psychology 3
Prereq Psych 372. Neurophysiological, hor-
monal, and biochemical bases of regulatory
behavior; theoretical and applied issues.
490 Cognition and Memory 3 Prereq 6 hours
Psych. Human information processing,
memory, and cognition.
496 Cooperative Education Internship V 2-6
May be repeated for credit; cumulative maxi-
mum 12 hours. Off-campus cooperative edu-
cation internship with business, industry, or
government unit coordinated through the Pro-
fessional Experience Program. S, F grading.
497 Instructional Practicum V 1-4 May be re-
peated for credit; cumulative maximum 4
hours. S, F grading.
498 Research Participation V 1 (0-3) to 4 (0-12)
May be repeated for credit; cumulative maxi-
mum 8 hours. Prereq 9 hours Psych including
a lab course. By interview only. Participation
in the current research of departmental fac-
tulty. S, F grading.
499 Special Problems V 1-4 May be repeated for
credit. S, F grading.
502 Research Participation V 1 (0-3) to 3 (0-9)
May be repeated for credit; cumulative maxi-
mum 16 hours. Research design, equipment,
data collection, data analysis, and report writ-
ing. S, F grading.
504 History of Psychology: Theoretical and Scien-
tific Foundations 3 Roots of scientific explana-
tion in psychology traced through various philo-
sophical schools and psychological movements.
505 Teaching Introductory Psychology V 1-3
May be repeated for credit; cumulative maxi-
mum 4 hours. Prereq graduate standing. Prob-
lems and techniques related to teaching intro-
ductive psychology. S, F grading.
507 Topics in Psychology 3 May be repeated for
credit.
508 Special Topics in Psychology V 1-3 May be
repeated for credit.
511 Advanced Statistics in Psychology 3
Prereq Psych 311. Probability, statistical inference,
correlation and regression, multivariate applica-
tions; computer analyses.
512 Statistical Inference and Research Design 3
Prereq Psych 511. Psychology statistics used
in the design and analysis of experiments.
513 Seminar in Quantitative Methods and Re-
search Design 3 May be repeated for credit.
Prereq Psych 512. Advanced topics in special-
ized quantitative procedures and in design of
research in psychology.
520 Theoretical Foundation of Psychotherapy 3
Major therapy systems.
521 Behavior Modification 3 (2-3) Prereq Psych
390, 520. Learning principles applied to
modifying behavior of children and adults in
institutions, clinics, and schools.
522 Applied Behavioral Research 3 Research
theory and methodology on development of
applied programs.
530 Professional Issues 3 Ethical and philosophi-
cal issues faced in the practice of psychology.
533 Psychopathology/Psychopharmacology I 3
Theoretical and empirical approaches to etiol-
gology and treatment of mental disorders; em-
phasis on diagnostic issues, somatic treat-
ment of the major psychoses. Cooperative
course taught by WSU, open to UI students
(Psych 575).
534 Psychopathology/Psychopharmacology II
Prereq Psych 533. Continuation of 533. Anxiety disorders, substance abuse, personality disorders, sexual disorders, and organic mental disorders.

535 Clinical Assessment
3 Interviewing procedures, case formulation, and case presentation.

536 Personality Assessment
3 Theories and methods of personality assessment.

539 Intelligence: Theory and Assessment
3 Theories and methods of appraising intelligence.

540 Group Psychotherapy
3 By interview only. Psychotherapeutics in the context of the group.

542 Community Psychology
3 Examination of community and its effects on health and behavior; organization of community-based mental health services.

543 Clinical Child Psychology
3 Behavior problems, diagnosis and treatment procedures with children.

544 Medical Psychology
3 Prereq Psych 533. Psychology in physical health and illness. Cooperative course taught by WSU, open to UI students (Psych 544).

545 Psychology Clinic Practicum
3 (0-9) May be repeated for credit; cumulative maximum 18 hours. Prereq Psych 520, 530, 535, 536, 539, or c//. By interview only. Supervised practice in the clinical application of psychology with children and adults in the Psychology Clinic. S, F grading.

546 Counseling Service Practicum
V 1-3 May be repeated for credit; cumulative maximum 12 hours. Prereq Psych 545 or c//. By interview only. Supervised practice in the clinical application of psychology at the WSU Counseling Service. S, F grading.

547 Medical Psychology Practicum
3 May be repeated for credit; cumulative maximum 18 hours. Supervised practice in the clinical application of psychology at the WSU Health and Wellness Service. S, F grading.

548 Behavioral Medicine Practicum
3 May be repeated for credit; cumulative maximum 18 hours. Supervised practice in the clinical application of psychology at the Sacred Heart Medical Center and St. Luke’s Rehabilitation Center. S, F grading.

549 (547) Seminar in Clinical Psychology
3 May be repeated for credit. Advanced current topics in clinical psychology.

550 Advanced Social Psychology
3 Theories, findings, and methods in group processes, interpersonal attraction, and personal perception. Cooperative course taught by WSU, open to UI students (Psych 520).

551 Interpersonal Dynamics
3 Theories and research in interpersonal dynamics; cognitive, learning, equity, and attributional concepts.

552 Cross-Cultural Issues in Psychology
3 Theories and research in cross-cultural psychology; cultural difference in psychopathology, assessment and treatment.

553 Personality: Theory and Research
3 Basic concepts in personality theory and research.

574 Physiological Psychology
3 May be repeated for credit. Neuroanatomical, neurochemical, and other biological cases of human and animal behavior.

575 Foundations of Neuropsychology
3 Foundations in brain-behavior relationships and neuropsychological syndromes; preparation for advanced training in neuropsychological assessment.

576 Neuropsychological Assessment
3 Prereq Psych 574. Brain-behavior relations in humans and the assessment of behavioral changes accompanying cerebral injury.

577 Behavioral Pharmacology
3 Prereq Psych 574. Survey of drugs which affect brain function with emphasis on animal models and clinical applications.

579 Behavioral Neuroscience
3 Prereq Psych 574. Advanced topics in neurochemistry, neuropsychology, and neuroanatomy.

584 Sensory Bases of Behavior
3 Prereq Psych 384. Sensory and physiological aspects of vision, audition, and other senses.

586 Seminar in Physiological/Sensory Psychology
3 May be repeated for credit. Advanced current topics in physiological/sensory psychology.

591 Models of Learning
3 Historical and current theory and research in learning and cognition.

592 Cognition and Memory
3 Experimental approaches to human information processing, memory, and cognition.

593 Experimental Analysis of Behavior
3 Operant conditioning in relation to the experimental evidence currently available; examination of research strategies.

594 Seminar in Learning/Cognition
3 May be repeated for credit. Advanced current topics in learning/cognition.

595 Clinical Internship in Psychology
V 2-16 May be repeated for credit; cumulative maximum 16 hours. Prereq passing of prelims and completion of course work for PhD. Clinical training in an internship approved by American Psychological Association or by WSU. S, F grading.

600 Special Projects or Independent Study
3 Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination
3 Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination
3 Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination
3 Variable credit. S, F grading.

Alcohol Studies

AlcSt
365 Problems of Alcohol Addiction and Abuse
3 Same as Psych 365.

366 Treatment Approaches in Alcohol Abuse/Alcoholism
3 Same as Psych 366.

367 Special Topics in Alcoholism
3 May be repeated for credit; cumulative maximum 6 hours. Prereq AlcSt 365, 366. By interview only. Selected current topics in alcoholism and alcohol-related problems.

444 Basic Helping Skills
2 (0-6) Same as Psych 444.

447 The Practice of Alcoholism Counseling
2 Prereq completion of AlcSt minor. By interview only. Assessment; therapeutic interventions; record keeping/report writing; regulations governing alcoholism facilities; professional, ethical, legal issues; professional, agency, and community relations.

499 Special Problems
V 1–4 May be repeated for credit. S, F grading.

Department of Sociology


Courses in sociology are designed to provide the student with a better understanding of what makes people and groups of people behave the way they do. Sociology studies the groups people form, the behavior and interaction of these groups, traces their origin and growth, and analyzes the influence of group activities on individual members. Some knowledge of sociology is widely regarded as a useful supplement to the course work in most fields. The course of study for majors is flexible enough to incorporate a variety of individual interests, such as deviance and criminology, the family, social welfare and social policy, and environmental sociology.

Majors may select one of eight options for specialized study: I. General Sociology, II. Social Research and Data Analysis; III. Law and Social Control; IV. Society, Environment and Technology; V. Personnel and Human Relations; VI. Business and the Economy; VII. The Family as an Institution; VIII. Social Welfare: Social Casework or Community Organization. These options are described below. The undergraduate sociology major provides excellent preparation for careers in a variety of occupations, including public relations, teaching, positions in government, social agencies, and industry; or as a foundation for careers in professions such as architecture and community planning, counseling, law, medicine, the ministry, politics, or public administration.

The department offers courses leading to the degrees of Bachelor of Arts in Sociology, Master of Arts in Sociology, and Doctor of Philosophy.

Degree Program Requirements

Students must meet the graduation requirements of the College of Liberal Arts. They are encouraged to make a broad and balanced sampling of GER courses to meet the university’s goal for a general education, as well as to explore or confirm possible major and career interests.

Major

A bachelor’s degree in sociology requires a minimum of 31 hours in which students must maintain a C average. Students may choose one of the following eight options, depending upon personal interests. All majors (except those selecting the social welfare option) must complete five required core courses in sociology, as well as five required and/or elective courses in their chosen option areas. Soc 356 cannot be counted for sociology credit. In addition to the required courses and recommended electives in sociology, students must earn 30 hours in related fields, half of which must be in 300-400-level courses. Selection of related fields from an approved list of courses in consultation with a faculty advisor makes possible the individualization of a student’s major program according to personal interests and career goals.
The following five courses are required of all majors selecting Options I-VII.

**Required Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Soc 101 Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Soc 320 Introduction to Social Research</td>
<td>3</td>
</tr>
<tr>
<td>Soc 321 Quantitative Techniques in Sociology</td>
<td>4</td>
</tr>
<tr>
<td>Soc 410 Development of Social Theory</td>
<td>3</td>
</tr>
<tr>
<td>Soc 490 Senior Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

**Option I. General Sociology**

This track introduces students to the study of society and its effect upon individual behavior. It provides a general background adaptable to a variety of interests and occupational goals. Students may complete their major within this track or begin here and switch to a different track should their interests change. Five additional Soc courses.

**Option II. Social Research and Data Analysis**

The courses in this track prepare students who wish to take jobs in research and data analysis or who intend to continue their education in graduate school. The track places special emphasis upon the methods used in data collection as well as the foundations for sociological theory and analysis. Students who complete this track will be able to work as research assistants and technicians or pursue graduate work in sociology or any of the related social sciences.

Five recommended from the following, including Soc 420 (required): Soc 330, 340, 343, 350, 360, 371, 420, 421.

**Option III. Law and Social Control**

This track is designed for students who are interested in research or other employment in public and private social control institutions. Examples might include community social action programs, correctional counseling, juvenile job programs and other youth programs, and programs aimed at alcoholism and drug abuse.

Sociology courses in this track examine theories, research and data concerning a variety of social problems and forms of deviant behavior, such as crime and juvenile delinquent gangs and youth subcultures, suicide, mental health, drug use and abuse, poverty, race and ethnic relations, and societal responses to these problems.

Five recommended from the following, including Soc 350 (required): Soc 270, 343, 350, 351, 356, 365, 371, 384, 446, 455, 480.

**Option IV. Society, Environment and Technology**

This track is designed for students interested in the interrelationship between society and the natural and technological environments. Increasingly many social problems, political debates and public policy issues are tied to concerns about the physical environment. The use of resources, the protection of species and habitats, the application of technologies for production and consumption, and the disposition of material wastes are environmental concerns important to sociology.

The continued rise of environmental concerns has resulted in the passage of many environmental laws and regulations, the establishment of many private and public environmental agencies, and the growth in community and public interest groups. Students completing this track will be prepared for employment in a wide variety of private and public agencies with an environmental mission; for example, local and state departments of ecology, community recycling programs, environmental action groups, consulting firms, and lobbying organizations.

The courses in this option, while focused on the environment and technology, are aimed at a balance between sociological theory, empirical research methods and substantive investigations.

Five recommended from the following, including two from Soc 331, 415, 430: Soc 330, 331, 332, 364, 374, 415, 442, 430.

**Option V. Personnel and Human Relations**

All kinds of organizations hire people who manage the utilization of human resources from initial recruiting, hiring, training and development to separation or planning for retirement. These personnel managers help to determine company policies, the design of work situations, and methods of developing more efficient and desirable work environments. They need to understand the operation of large bureaucracies and the impact organizations have on people who work within them. A personnel manager is only one example of a human relations worker who must understand employees' and employers' points of view and work to meet the needs of both groups.

Sociological knowledge about people and how they interact in groups as well as how individuals and groups are affected by their social environment is necessary for anyone who works in the general area of human relations. Other important skills needed for this work are the abilities to observe, analyze, evaluate, and change behavior as well as the ability to communicate accurately in writing and speaking.

Five recommended from the following, including Soc 350 (required): Soc 270, 343, 350, 351, 356, 365, 371, 384, 446, 455, 480.

**Option VI. Business and the Economy**

There are many jobs in the business world that sociologists can fill very successfully. They are found in banks, insurance companies, health care organizations, hospitals, commercial recreation, merchandising and sales, real estate, as well as local government.

Individuals who want to work in any of these areas will be interested in the business and economy track in sociology. They will gain essential knowledge about complex organizations and society, professions and occupations, public opinion, social inequality, population trends, and minority cultural groups. In addition to sociological knowledge, effective employees in business need good oral communication skills, an ability to write clearly, analytical and problem solving skills, the ability to relate to other people, and a broad understanding of how people interact in their social environments.

Five recommended from the following, including Soc 342 or 343 (required): Soc 330, 331, 340, 342, 343, 364, 373, 374, 384, 418, 424, 424, 430, 446, 480.

**Option VII. The Family as an Institution**

This track focuses on the family as an institution and the social structure in which families are embedded. The information contained in the course work is related to marriage, family dynamics, gender issues and societal changes and institutions.

Five recommended from the following, including Soc 150 and 351 (required): Soc 150, 340, 350, 351, 356, 384, 455.

**SOCIOLGY DEGREE PROGRAM (121 HOURS)**

<table>
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<tr>
<th>Semester</th>
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<tbody>
<tr>
<td>Freshman Year</td>
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<tr>
<td>First Semester</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Tier I Sciences [Q] (GER)</td>
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<td>Elective</td>
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<td>Sophomore Year</td>
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<td>First Semester</td>
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* This is a prototype of one of many ways to complete the Sociology Degree Program in four years. The programs has built-in flexibility, and students should consult their advisors regarding other acceptable course plans.


1 Related fields courses are approved by the department and chosen in consultation with the major advisor. At least 15 of the required 30 hours of related fields course work must be upper division. Certain GER courses may also count as related fields, thus allowing the student more electives. In addition, this plan assumes that GER courses are selected to meet an Area of Coherence.


3 Currently offered fall semester only.

Option VIII. Social Welfare

This track is intended to provide students with appropriate training for employment in areas such as social welfare delivery services, public policy analysis, needs assessment, or social impact assessment. Two sequences are provided below.

A. Social Casework

Preparing students to gain knowledge and attitudes appropriate to enable them to assist clients who wish to make behavioral change is of major importance in this sequence. The National Association of Social Workers has identified specific goals for which an individual social work practitioner needs specific knowledge in order to achieve. They are:

A. To enhance problem-solving, coping and developmental capacities of people;
B. To link people with systems that provide resources, services and opportunities;
C. To promote effective and humane operations of systems;
D. To develop and improve social policy.

During the first two years, students will be expected to concentrate on General Education Requirements. In the third year the student will complete required courses and in the fourth year will spend a full semester in an agency field placement.

Required Courses: S W 190, 390, 393; 395 or 396; 490, 492, 493, 495 or 496; Soc 101, 320, 321, 340, 351.

B. Community Organization

This sequence is intended for the student who wishes to supplement the social welfare option with a specialization in the area of community organization. Graduates with these skills could be called upon within their local communities to provide leadership in major problem-solving tasks. Students intending to acquire a degree in this sequence could apply their skills in either employment or volunteer services. During the first two years, students are expected to concentrate on meeting GERs. In the third year the student will complete required courses and in the fourth year spend a full semester in an agency field placement.

Required Courses: S W 190; 390 or 393; 396, 490, 492, 493, 495 or 496; Soc 101, 320, 321, 330, 424.

SOCIAL WELFARE DEGREE PROGRAM (122 HOURS) ▶FYDA

Freshman Year

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<tr>
<th>First Semester</th>
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<th>Hours</th>
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<td>Freshman Year</td>
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Second Semester

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<tr>
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Sophomore Year

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<td>S W 190</td>
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Junior Year

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<td>Related Field Electives</td>
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<td>Soc 321</td>
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<tr>
<td>Soc 351 (Soc 330)</td>
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<td>S W 390 (or S W 393)</td>
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<td>Soc 340 (Soc 424)</td>
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<td>S W 395 or 396 (S W 396)</td>
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<td>S W 495 or 496</td>
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Senior Year

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<td>S W 393 (Elective)</td>
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<td>S W 492</td>
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<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
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</tr>
<tr>
<td>S W 490</td>
<td>15</td>
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</table>

* This is a prototype of one of many ways to complete the Sociology Degree Program in four years. The program has built-in flexibility, and students should consult their advisors regarding other acceptable course plans.

1 Related fields courses are approved by the department and chosen in consultation with the major advisor. At least 15 of the required 30 hours of related fields course work must be upper division. Certain GER courses may also count as related fields, thus allowing the student more electives. In addition, this plan assumes that GER courses are selected to meet an Area of Coherence.

2 Courses in parentheses apply to the Social Welfare/Community Organization option rather than the Social Welfare/Casework option.

Minors

The minor in sociology may be certified after completion of 90 semester hours. It requires a minimum of 18 credit hours in sociology, including Soc 101, 320, and at least 9 additional graded hours of 300-400-level courses. Any Soc or S W course may be counted toward the minor (subject to the above provisions) except S W 490 and Soc 366. A g.p.a. of 2.0 is required for the minor.

Description of Courses

Sociology

Soc 101 [S] Introduction to Sociology 3 Human society and social behavior; effects of groups, organizations, cultures, and institutions.

Soc 102 [S] Social Problems 3 The structure of social institutions and cultural factors that constitute threats to society (crime, poverty, discrimination, drugs, family violence).

Soc 150 Marital and Sexual Life Styles 3 Traditional and alternative marriage styles; social and personal factors in mate selection; sexual life styles; development of sex roles.

Soc 195 [S] Introduction to Sociology Honors 3

Soc 270 Personal Identity and Social Interaction 3 Development of self concept in social interaction; attitudes, values, beliefs and behaviors; conformity and interpersonal influence.

Soc 300 [S] [M] Intersections of Race, Class and Gender 3 Same as W St 300.

Soc 301 Rural Sociology 3 Comparison of rural and urban societies; rural social change and implications for the future.

Soc 302 Contemporary Masculinity and Men’s Issues 3 Same as W St 302.

Soc 320 Introduction to Social Research 3 Methods of collecting data; surveys, experiments, field observations; organization and interpretation of data; reading social research findings.

Soc 321 Quantitative Techniques in Sociology 4 Prereq Soc 320. Levels of measurement; measures of central tendency, dispersion and association; normal curve, statistical inference; logic of quantitative comparison and decision making.

Soc 330 Urbanization and Community Organization 3 Organization, function, change, development, and decline of communities; applications emphasizing rural or urban settings.

Soc 331 [S] Population, Resources, and the Future 3 Effects of population on resource depletion, environmental deterioration, social and economic structure; zero population growth prospects; limits to growth debate.

1 Open only to students in the Honors Program.
332 Sociology and Environment 3 Prereq Soc 101. Society-environment relations, including environmental attitudes and behavior; the environmental movement and environmental politics and policy-making.


342 [S] Political Sociology 3 Sociological analysis of political institutions and power structures; social and cultural basis of political behavior.

343 Sociology of Professions and Occupations 3 Social organization of work in America including historical and contemporary trends, bureaucracy, gender/racial inequality, technological affects, work/family relations.

345 Sociology of Sport 3 Sociological study of sport in America.


351 [S] The Family 3 Prereq Psych 105 or Soc 101. Family system and its interaction patterns; family life cycle from marriage through death; marital relations, divorce, sexuality, parenting crisis, abuse.

352 Sociology of Emotions 3 Prereq Psych 105 or Soc 101. Examination of emotions by surveying current theory and research; investigate emotions such as shame, guilt, empathy, jealousy, envy, and anger.

356 Sociology of Aging 3 Aging as a lifelong process, behavior, personality competencies, social relations changes over the life course; historical, social, structural, demographics, contextual influences. Cooperative course taught jointly by WSU and UI (Soc 431).

360 [S] Theories of Deviance 3 A survey of classical and contemporary theories of deviance.

361 Criminology 3 Crime and society; nature, types, and extent of crime; theories of criminality; control of crime.

362 Juvenile Delinquency 3 Sociological perspectives on delinquency; delinquent gangs and subcultures; delinquency causation and control; law and its enforcement; juvenile justice and corrections.

363 The Social Organization of Hate Crimes 3 Social organization of hate crimes and the larger context within which they occur.

364 [M] Law and Society 3 Prereq Crn J 101 or Soc 101. Various points of intersection of legal and social systems; special attention given to historical development.

365 Problems of Alcohol Addiction and Abuse 3 Same as Psych 365.

366 Treatment Approaches in Alcohol Abuse/Alcoholism 3 Same as Psych 366.

367 Juvenile Justice and Corrections 3 Same as Crn J 365.

371 Small Group Analysis 3 Prereq Soc 101. Interpersonal relations in small groups; influence and social power.

372 The Sociology of Film 3 The social, economic, and political factors that influence film production and the impact of films on American culture.

373 [S] Media, Culture and Society 3 The production of popular culture by media organizations and its effects on society.

374 [S] Collective Behavior and Social Movements 3 Prereq Soc 101. Social and cultural factors conducive to the rise of new movements; process by which movements are institutionalized as organizations.


391 Special Topics in Sociology V 1-3 May be repeated for credit; cumulative maximum 6 hours.

392 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

410 [M] Development of Social Theory 3 Prereq Soc 101. Examination of the foundations of sociological theory; exposes students to original works of theorists. Credit not granted for both Soc 410 and 510.

415 (315) [S] Ecology of Human Societies 3 Prereq Anth 101 or Soc 101; ES/RP 101; completion of one Tier I and three Tier II courses in appropriate area of coherence. Ecological and evolutionary foundations of human social organization and culture; theories of ecosystem and social system interdependencies.

418 Human Issues in International Development 3 Same as Anth 418.

420 Sociological Methods and Techniques 3 Prereq Soc 320. Introduction to sociological research methods; research procedures; measurement, observation, experimentation, survey methods, sampling, questionnaire construction, analysis.

421 Quantitative Techniques in Sociology II 3 Probability theory, inference theory, one and two sample tests; simple and multiple regression analysis.


430 [S] Society and Technology 3 Prereq completion of one Tier I and three Tier II courses in the appropriate area of coherence. Role of technology in social evolution; social impacts and shaping of technology.

446 Medical Sociology 3 Social factors related to health and illness; organization and change in health care; impacts of health care reform, rising costs, and aging. Credit not granted for both Soc 446 and 546.

455 [S] Human Values 3 Prereq Psych 105 or Soc 101; Psych 350; completion of one Tier I and three Tier II courses in appropriate area of coherence. The nature and measurement of values; relationship to attitudes, identities, and behavior; value development and change in self and society.


480 Sociology of Race Relations 3 Basic understanding of race relations; major sociological concepts and theories regarding minority and majority group relations. Credit not granted for both Soc 480 and 580.

484 [S] Lesbian and Gay Studies 3 Same as W St 484.

490 [M] Senior Seminar 3 Prereq senior in Soc. Integration and synthesis of knowledge gained from major course work; emphasis on employment opportunity for sociologists.

491 Advanced Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

499 Special Problems V 1-4 May be repeated for credit. Students, S, F grading.

510 Development of Social Theory 3 Graduate-level counterpart of Soc 410; additional requirements. Credit not granted for both Soc 410 and 510.

511 (510) Theories of Social Organization 3 Major theories of social organization in historical perspective.

512 Theory Construction and Formalization 3 Testing; formalization of theoretical systems; adaptation of general models to specific problems.

517 Seminar in Contemporary Sociological Theory 3 Recent developments in sociological theory, analysis, application and appraisal of specific theoretical systems.

519 International Development and Human Resources 3 Graduate-level counterpart of Soc 410; additional requirements. Credit not granted for both Soc 424 and 524.

521 Regression Models in Sociology 3 Methodology of social research at the professional level.

525 Practicum in Survey Research 3 Prereq Soc 521. Practical experience in design and implementation of telephone and mail surveys; participation in all aspects of conducting a survey.

530 Demography 3 Population studies; causes, effects, and measurement of changes in fertility, mortality, and migration; population estimation and projection.

531 Human Ecology 3 Ecosystem context of human life; change viewed ecologically; sociological use and misuse of ecological concepts; issues in theory and research.

532 Environmental Sociology 3 Societal-environmental interactions; impacts of human societies on the physical environment; environmental impacts on human behavior and social organization.

533 Social Impact Assessment 3 Sociology’s contribution to environmental impact assessments; methods, contents, and contexts of assessing social impacts of proposed developments.

534 Energy and Society 3 Energy and societal evolution; energy consumption patterns and quality of life; social impacts of energy shortages and alternative energy systems.

535 Technology and Society 3 Prereq graduate standing. Analysis of sociotechnical systems; effects of technology on society; the social shaping of technologies and their environmental impacts.
542 Theories of Social Stratification 3 Marx, Dahrendorf, Weber, Sorokin, Mills, Pareto; problems of stratification research; social class and social policy.

544 Sociology of Religion 3 Role of religion in social structure, process and change; analysis of religious behavior.

545 Sociology of Community 3 Community stability and change; interaction processes; decision making; societal linkages; effects on well-being.

546 Medical Sociology 3 Graduate-level counterpart of Soc 446; additional requirements. Credit not granted for both Soc 446 and 546.

548 Political Sociology 3 Systematic survey of theories and the major research literature in political sociology.

550 Advanced Social Psychology 3 Same as Psych 550.

551 Comparative Family Systems 3 Comparative research on and theory of marital, family, and kinship relations and behavior.

552 Practicum in Family Research V 1–4 May be repeated for credit; cumulative maximum 12 hours. Research design, measurement, data collection, analysis, and manuscript writing.

553 Social Organization and the Family 3 The family as a social institution; principles of social organization applied to family relationships; macro-level analyses of family structure.

554 Social Psychology of the Family 3 The family as an interacting group; social psychological theories and research applied to family relations; effects of families on individuals.

555 Sex Roles in Society 3 Same as H D 555.

556 Sociology of Aging 3 Theory and research on changes that individuals undergo over the life course as a function of socialization and maturational processes.

560 Problems of Deviance Theory 3 Development of theories of deviant behavior; new issues in the study of deviance.

561 Sociology of Law 3 Social factors affecting the development and maintenance of legal structures and the processes of administration of justice.

567 Seminar in Crime and Delinquency 3 Contemporary theory and research in crime and delinquency.

568 Adolescent Deviance 3 Contemporary sociological theory and research in adolescent deviance; action programs; and emerging issues.

571 Small Group Theory and Research 3 Theory and methods of small group research; types of groups, formation, and development of communication networks; socialization in group situations.

572 Socialization 3 Theories of childhood and adult socialization; personality development; symbolic interaction; learning; agents of socialization.

573 Group Processes 3 Sociological research and theory dealing with overt behavior in human interaction settings and its cognitive antecedents.

580 Sociology of Race Relations 3 Graduate-level counterpart of Soc 480; additional requirements. Credit not granted for both Soc 480 and 580.

590 Special Topics in Sociology 3 May be repeated for credit; cumulative maximum 9 hours.

591 The Profession 1 May be repeated for credit; cumulative maximum 2 hours. Requirements, operations, problems, and possibilities of the sociology profession. S, F grading.

592 Special Topics in Sociology 3 May be repeated for credit; cumulative maximum 9 hours.

593 Special Projects or Independent Study Variable credit. S, F grading.

594 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

595 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Social Welfare and Public Policy

S W

190 Introduction of Social Work 3 Survey of practice; social workers and social service agencies, individual, group, and community practice.

390 Social Welfare History and Policy 3 Prereq S W 190. Current social welfare programs; income maintenance, health services, criminal justice, public housing, child welfare; historical development of social welfare programs.

393 Social Work Methods in Community Organization 3 Prereq S W 190. Social legislation creation and impact on delivery services by professional/paraprofessional social workers.

395 Child Welfare 3 Prereq S W 190. Social work practice in child welfare; adoption, foster homes, child protection, group homes, day care, children's institutions, dependency, traditional and non-traditional family.

396 Social Work with the Aging 3 Prereq S W 190. The aging process; accessing community resources for the elderly; applying social work methods to the elderly and their family systems.

400 [M] Social Work Field Experience 10 or 15 Placement in social agency; knowledge in the helping relationship; decision making in applied settings. S, F grading.

401 Social Work Senior Seminar 1 Practicum preparation; practical advice about social work careers, resume writing, interviewing skills. S, F grading.

402 [M] Social Work Methods: Individual and Groups 3 Prereq S W 190. Social work values, ethics; technical aspects of interviewing and working with client systems; communication; group work skills.

403 Social Work in Corrections 3 Prereq S W 190. Applying social work methods to the field of corrections; community-based programs for adult offenders; interventions with juvenile offenders.

407 Social Work in Health and Mental Health 3 Prereq S W 190. Applying social work methods to the fields of health and mental health with an emphasis on practical skills.

409 Special Problems V 1–4 May be repeated for credit. S, F grading.

Department of Speech and Hearing Sciences

Professor and Department Chair, G. D. Chermak; Professor, C. L. Madison; Professors Emeriti, J. R. Franks, R. E. Potter, M. E. Wingate; Associate Professors, J. M. Johnson, J. A. Seikel; Assistant Professors, D. S. Barnkow, C. Coleman, C. Jones, B. L. Macaulay, L. Power, N. Rickert, N. E. Vaughan, L. Vogel; Program Coordinator, E. Inglebret; Adjunct Lecturer, M. Mitchell; Courtesy Associate, K. Mitchell.

The Department of Speech and Hearing Sciences offers courses of study leading to the degrees of Bachelor of Arts in Speech and Hearing Sciences and Master of Arts in Speech and Hearing Sciences. Academic course work and clinical practicum offerings prepare professional personnel to meet the diagnostic and therapy needs of individuals of all ages evidencing a wide variety of speech, language, learning, and hearing problems.

Students are prepared, as speech-language pathologists and audiologists, to provide direct and consultative services in education and medical settings. The course of study emphasizes the physiological and psychological processes of normal development, the fundamental communication process, and the disorders of communication. The analytic and independent application of course content to the clinical process is encouraged.

The Speech and Hearing Clinic is the Pullman campus training facility for the Speech and Hearing Sciences Department. Speech, language, and audiology services are available through the Speech and Hearing Clinic.

The graduate program, located in Spokane, is a cooperative venture, combining faculty and resources of Washington State University and Eastern Washington University to form University Programs in Communication Disorders (UPCD). WSU students enroll through and receive their degrees from Washington State University. The Hearing and Speech Clinic is the Spokane campus training facility for the University Programs in Communication Disorders. Opportunities to work with special populations and in medical settings are readily available in the Spokane area. A capstone internship program provides intensive practical experience in many clinical and educational settings.

The graduate program is accredited nationally by the Council of Academic Accreditation of the American Speech-Language-Hearing Association and by the Board of Education of the state of Washington. State and national clinical and educational certifications require a master’s degree. Bachelor’s level training in speech and hearing sciences is considered preprofessional.

Degree Program Requirements

At least 45 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses. Successful completion of SHS 475 and 478 fulfills the university requirement of two writing in the major courses, designated [M].

The Speech and Hearing Sciences Department provides preparation for professional (graduate) training as a speech-language pathologist or audiologist. This course sequence is based on fall enrollment. GERs must be completed in College of Liberal Arts prior to the fifth semester.

**SPEECH AND HEARING SCIENCES DEGREE PROGRAM (123 HOURS)**

**First Semester**

**Hours**

**Freshman Year**

**First Semester**

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3

Biological Sciences [B] (GER) 4

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Preparation for Graduate Study

Students with undergraduate majors in child development, the humanities, education, the social and behavioral sciences, as well as those with undergraduate majors in speech and hearing sciences, may be accepted for graduate study in this department.

Description of Courses

Speech and Hearing Sciences

SHS
118 Accent Reduction for International Students 2 May be repeated for credit; cumulative maximum 4 hours. Instruction in production of the sounds and pattern of general American speech. S grading.

205 Introduction to Speech-Language Pathology and Audiology 3 Overview of deficits of speech, language, and hearing and the role of speech-language pathologist and the audiologist.

250 [S] Perspectives on Disability 3 Historical, international, socioeconomic, ethical and personal perspectives on disability; individual choices, societal values, and social responsibility.

281 Sign Language 1 2 Instruction and practical training in sign language for communication with persons who are deaf.

371 Development of Speech and Language in Childhood 3 Normal development of the cognitive, linguistic, and pragmatic components of language; introduction to language disorders in children.

372 Hearing and Hearing Disorders 3 Acoustic and psychophysiological aspects of normal hearing and speech perception, and the nature and consequences of hearing disorders.

375 Phonetics 2 Acoustic and applied phonetics.

376 Clinical Methods in Articulation 3 Evaluation and management of articulation disorders of speech; delayed phonological acquisition, dysarthria, and dyspraxia.

377 Anatomy and Physiology of the Speech Mechanism 4 Anatomical and physiological basis of speech production and the pathologies and aberrations that require the services of a communication disorders specialist.

450 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

461 Clinical Apprenticeship in Speech-Language Pathology and Audiology 1 (0-3) Prereq SHS 471 or c/ I. Pre-practicum preparation; observation of and assisting in therapy. S, F grading.

469 Sign Language II 3 Prereq SHS 281. Sign language systems; vocabulary and skill development in signing and interpreting signs.

470 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. By interview only. Study of specialized topics in speech and hearing sciences.

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Minors

A minor in the Department of Speech and Hearing Sciences requires a minimum of 16 hours including SHS 205, 371, 372, plus 8 hours 300-400-level courses excluding SHS 475, 476.
Advanced Audiological Rehabilitation 3
Prereq SHS 477. Practices and research in communication strategies training; speech and listening technology; exploration of current issues.

Problems in Stuttering 3 Prereq SHS 474. Historical and current literature; problem-solving strategies applied to theoretical and clinical problems in stuttering.

Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Advanced study of specialized topics in speech and hearing sciences.

Advanced Speech and Hearing Sciences 3 Prereq SHS 372, 377. Theory, measurement, and instrumentation in acoustics, normal speech production, and audition.

Neuromuscular Disorders 3 Prereq SHS 377. Underlying processes of neuromuscular control and feedback; results of damage and disease on neuromotor system.

Dysphagia 3 Prereq SHS 377. Anatomy and physiology of swallowing; evaluation and treatment of swallowing disorders.

Language of Children with Hearing Impairment 3 Prereq SHS 371, 377. Speech production and speech perception abilities and language development and intervention strategies with the hearing impaired.

Augmentative Communication 3 Prereq SHS 478, 482. Augmentative communication theory; implementation, training strategies, ongoing adjustments, and evaluating effectiveness.

Off-Campus Clinical Practice V 2 (0-6) to 6 (0-18) May be repeated for credit; cumulative maximum 15 hours. Prereq SHS 575. By interview only. Advanced clinical practice in off-campus setting; evaluation and treatment of speech, language, and hearing disorders.

Issues in Clinic Service Delivery 1 Prereq SHS 575. Overview of clinic operations, policies, procedures; legal, ethical, and professional issues. S, F grading.

Advanced Internship in Speech-Language Pathology and Audiology V 1-18 May be repeated for credit. Prereq SHS 471, 566, 575, by interview only. Advanced practicum in diagnosis of and therapy for communication disorders. S, F grading.

Seminar in Speech Pathology and Audiology 3 May be repeated for credit; cumulative maximum 9 hours. Exploration of ideas derived from current writings and research in speech pathology and audiology.

Hearing Aids 3 Prereq SHS 472, 477. Hearing aid technology, evaluation and fitting; programmable hearing aids; probe microphone measurement; prescriptive techniques.

Cleft Palate 3 Prereq SHS 377. Speech and voice problems associated with clefts of the lip and palate.


Advanced Clinical Practice V 2-6 May be repeated for credit; cumulative maximum 9 hours. Advanced clinical practice in evaluation and treatment of speech, language, and hearing disorders.

Voice Disorders 3 Prereq SHS 377. Functional and organic voice disorders resulting from various etiologies.


Professional Issues in Speech-Language Pathology and Audiology 3 May be repeated for credit; cumulative maximum 9 hours. Contemporary philosophical and professional issues in the field of communication science and disorders.

Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Advanced study of specialized topics in speech and hearing sciences.

Clinical Perspectives 3 Theory and clinical experience designed to assist students in integrating course work into a clinical perspective.


Hearing Conservation in Industry and Society 3 Prereq SHS 472. Prevention and management of noise-induced hearing loss; interactions between noise and other ototoxic agents and physical characteristics of the individual.

Pediatric Audiology 3 Prereq SHS 472. Developmental anatomy and physiology of the human auditory system; auditory behavior and pathologies in children; assessment of infants and children.

Speech-Language Pathology in the Medical Setting 2 Report writing and charting, collaborating with the medical team, establishing prognosis and assessing efficacy of treatment, and third-party reimbursement.

Phonological Acquisition and Behavior 3 Prereq SHS 376. Current literature in articulatory development and deviancy; diagnosis and therapy.

Professional Development in Speech-Language Pathology and Audiology 1 or 2 Prereq SHS 476 or 570. Planning and implementing a program of continuing education in speech language pathology and audiology leading to the Continuing Level ESA Certificate from OSPi. S, F grading.

Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. By interview only. Advanced study of specialized topics in speech and hearing sciences.

Advanced Audiometric Procedures with Special Populations 3 Prereq SHS 472. Differential diagnosis and clinical decision analysis for special populations; otoacoustic emissions; vestibular testing.


Special Projects or Independent Study Variable credit. S, F grading.

Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.
420 Statistical Analysis of Qualitative Data 3 Prereq Math 140, 171, 201, 202, or 220; statistics course. Binomial, Poisson, multinomial distribution; contingency tables, Fisher’s tests, log-linear models; ordinal data; applications in biology, business, psychology, and sociology. Credit not granted for both Stat 420 and 520. Cooperative course taught by WSU, open to UI students (Stat 420).

422 Sampling Methods 2 Prereq Stat 212 or 360. Simple and stratified random sampling; systematic sampling; cluster sampling; double sampling, area sampling. Cooperative course taught jointly by WSU and UI (Stat 422).

428 Geostatistics 3 Prereq Stat 360. Applications of random variables and probability in geologic and engineering studies; regression, regionalized variables, spatial correlation. Cooperative course taught by UI (Stat 428), open to WSU students.

430 Statistical Methods in Engineering 3 Same as Math 430.

442 Statistical Methods for Engineers and Scientists 3 Same as Math 442.

444 Applied Probability 3 Same as Math 443.

444 Introduction to Statistical Theory 3 Same as Math 444.

472 Statistical Packages 3 (2-3) Same as Math 472.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

504 Special Topics 3 Prereq Stat 444. Cooperative course taught by UI (Stat 504), open to WSU students.

507 Experimental Design 3 Prereq Stat 512. Methods of constructing and analyzing designs for experimental investigations; analysis of designs with unequal subclass numbers; concepts of blocking randomization and replication; confounding in factorial experiments; incomplete block designs; response surface methodology. Cooperative course taught by UI (Stat 507), open to WSU students.

510 Topical Problems in Probability and Statistics 3 Graduate-level counterpart of Stat 410; additional requirements. Credit not granted for both Stat 410 and 510.

511 Statistics for Economics 4 Same as Ag Ec 510.

512 Analysis of Variance of Designed Experiments 3 Prereq Math 360 or Stat 412; Rec Stat 390, 391. Principles of experimental design and analysis and interpretation of data.

513 Advanced Econometric Application 3 Same as Ag Ec 513.

514 Nonparametric Statistics 3 Prereq Stat 512. Conceptual development of basic nonparametric tests including their power and efficiency. Cooperative course taught by UI (Stat 514), open to WSU students.

516 Time Series 3 Same as Dec S 516. Cooperative course taught by WSU, open to UI students (Stat 539).

518 Techniques in Sampling 3 Same as Dec S 518.

519 Applied Multivariate Analysis 3 Same as Dec S 519. Cooperative course taught jointly by WSU and UI (Stat 521).

520 Statistical Analysis of Qualitative Data 3 Graduate-level counterpart of Stat 420; additional requirements. Credit not granted for both Stat 420 and 520. Cooperative course taught by WSU, open to UI students (Stat 520).

530 Applied Linear Models 3 Prereq Stat 412 or 430. The design and analysis of experiments by linear models.

531 Econometrics 3 Same as Econ 511. Cooperative course taught by WSU, open to UI students (Stat 531).

533 Theory of Linear Models 3 Prereq Math 420, Stat 430, or 444. Theoretical basis of linear regression and analysis of variance models; a unified approach based upon the generalized inverse. Cooperative course taught jointly by WSU and UI (Stat 533).

535 Regression Analysis 3 Prereq Stat 430 or 444. Conceptual development of regression; estimation, prediction, tests of hypotheses, variable selection, diagnostics, model validation, correlation, and nonlinear regression. Cooperative course taught jointly by WSU and UI (Stat 510).

542 Applied Stochastic Models 3 Same as Dec S 542.

544 Applied Stochastic Processes 3 Prereq Stat 430 or 443. Poisson and Markov processes; queuing theory; auto-covariance; stationarity; power spectra; harmonic analysis; linear mean-square predictions. Cooperative course taught jointly by UI (Stat/For 555), open to WSU students.

573 Reliability Theory 3 Same as Math 573.

586 Applied Multiple Time Series Analysis 3 Same as Dec S 586.

590 Statistical Consulting Practicum 1 or 2 Theory and practice of statistical consulting, participation in consulting session. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Preparation for Graduate Study

As preparation for work toward an advanced degree in statistics, a student should have completed one or more courses in statistical methods, a course in probability and statistical theory, and mathematics through multivariable calculus and linear algebra. Advanced calculus is also strongly recommended. More important than the above specific courses is an indication of the student’s interest and ability in statistics. Virtually all U.S. graduate programs provide adequate opportunity to take prerequisite courses after admission to graduate school.

Department of Teaching and Learning


The Department of Teaching and Learning prepares teachers and other specialists for schools and colleges. Its programs are accredited by the National Council for Accreditation of Teacher Education (NCATE), the Northwest Association of Schools and Colleges and the State Board of Education. Courses of study are offered for the Bachelor of Arts in Education, Master of Arts in Education, Master of Education, Master in Teaching, Master of Education in Teacher Education, Master of Science in Education, Master of Science in Teaching, Master of Science in Curriculum and Instruction, Master of Science in Educational Administration, Doctor of Philosophy, and for teacher certification.

The mission of the College of Education, through its inquiry-based model of learning, is to educate effective practitioners and scholars who possess the leadership and problem-solving skills necessary to meet the needs of citizens of the 21st century. The inquiry approach, in contrast to approaches that view the purpose of the teacher as merely transmitting knowledge, requires students to be active and critical participants in the formation of their own intellectual development in a life-long process and to evaluate their performance in terms of its effects upon children, schools, and society. It is our belief that teachers must be liberally educated, well grounded in human growth and development, informed and appreciative of cultural and linguistic diversity, committed to egalitarian ideals, capable of communicating and inspiring an interest in learning in others, competent in the technical aspects of teaching and managing group learning, and reflective about their own beliefs and actions. WSU’s inquiry-based approach provides students with a challenging framework for the study of individual and group experiences, responses, and perceptions that form the basis for research that informs the application and formulation of educational theory and methodology used to advance professional practice.

Teacher Certification

The College of Education prepares individuals to teach in two broad categories: elementary education (multiple subject, grades K-8) and secondary (single subject, grades 4-12 and K-12). The teacher certificate, awarded by the superintendent of Public Instruction upon recommendation by Washington State University, designates the grade level and subject area in which the certificate holder is qualified to teach. Teacher preparation and certification are available in Pullman as part of undergraduate or graduate programs, and at the branch campuses in Vancouver and Tri-Cities as part of a Master’s in Teaching (MIT) degree program.

In Pullman, K-8 elementary certification is attainable with the Bachelor of Arts degree in education, the Master of Education, and through the Bachelor of Arts degree in Human Development, early childhood teaching option. At the branch campuses, K-8 elementary certification is attainable as part of the MIT degree.
To prepare in a single subject, the candidate shall complete the baccalaureate degree/teaching option offered through the subject matter department, or in general studies. Single-subject preparation is available in the following areas: agriculture, anthropology, biology, chemistry, drama, earth science, English, English/language arts, foreign languages (French, German, Russian, Spanish); history, family and consumer sciences, journalism, mathematics, music (broad, choral, instrumental); physics, political science, science, social studies, and speech. All single-subject endorsements are for grades 4-12 except foreign languages and music which are valid for grades K-12. Specific course requirements for each primary endorsement are listed under 4-12 Certificate Programs and K-12 Certificate Programs at the end of this section.

To enhance employment opportunities it is highly recommended that all teaching certificate candidates prepare to teach in a subordinate area by satisfying state requirements for a supporting endorsement. Course work for the following supporting endorsements is listed at the end of this section: anthropology, bilingual education, biology, chemistry, comparative religion, drama, early childhood, earth science, English, English as a second language, foreign languages (French, German, Japanese, Russian, Spanish), history, journalism, mathematics, music (broad, choral, instrumental), philosophy, physics, political science, psychology, reading, sociology, special education, and speech. State endorsement requirements are subject to change by the State Board of Education.

Admission to Teacher Preparation

Applicants who meet the minimum requirements listed below are eligible for but not assured admission. Enrollment in the program is limited and admission competitive. Admission requirements may change during the life of this catalog. Current information and application materials for programs on the Pullman campus can be obtained from the Teacher Education Student Services Center. Inquiries relating to the Master’s in Teaching elementary certificate programs offered at WSU Vancouver and WSU Tri-Cities should be directed to the appropriate branch campus.

Minimum Criteria

1. Completion, within the last three years, of 80 hours of supervised work with children or youth in a diverse setting.
2. ACT or SAT score which meets current state requirements. (Inquire at Teacher Education Student Services Center.) Those holding a bachelor’s degree and those with two years of successful college work in which competency in oral and written communication, math and reading has been demonstrated are exempt.
3. Completion of at least 30 semester hours of course work
4. Minimum cumulative g.p.a. of 2.50
5. English composition course with a minimum grade of C
6. SpCom 102 or equivalent public speaking course with a minimum grade of C
7. Elementary and Early Childhood Majors: Math 251 and at least two GER science courses with minimum grades of C
8. Secondary Majors: Nine hours of course work in the primary endorsement area. Certified in major department; major department may have additional criteria for teaching option candidates.
9. An interview and writing sample may be required.

All candidates must complete formal admission procedures and be admitted to teacher preparation prior to taking any professional education course work beyond T & L 300, 301, 315/316, or 317/318. Admittance to, or continued enrollment in, the teacher preparation program may be denied a candidate on the basis of review by the faculty.

Transfer and Postbaccalaureate Admission

Transfer students and postbaccalaureate applicants must meet the minimum admission requirements stated above. For the teacher certificate to be awarded through WSU, the candidate must complete a minimum of fifty percent of the total hours required in the elementary or secondary professional education core, in the K-8 endorsement (if applicable), and the full semester of student teaching at WSU. Candidates should consult with the Teacher Education Student Services Center regarding equivalency of transfer work.

Field Experiences

All WSU teacher certificate programs provide opportunities for teacher candidates to gain meaningful experiences by working directly with and observing children in school settings. It is our intent to insure that individuals placed in K-12 classrooms are adequately prepared and that they possess those characteristics desirable for working with children and young people. The College of Education therefore reserves the right to refuse placement of any student in a field experience, or to terminate individual placements, if in the professional judgment of faculty or coordinating field personnel there is a cause for concern about the fitness of that individual to work with children in a classroom setting.

In all programs, field experiences are required of all candidates. In Pullman, student teaching placements are arranged by the Teacher Education Student Services Center with school districts contracted to provide field experiences for WSU students. Students may not make their own placements. At the branch campuses, WSU personnel are designated to make field placements in school districts with which we have contracts. On the Pullman campus, applications for student teaching must be made one full academic year prior to the actual student teaching semester. Application forms can be obtained from the Teacher Education Student Services Center. The following courses are designed as required field experiences.

T & L 300, Introductory Field Experience (1 credit) This first course in the certificate program engages the student in reflection upon the responsibilities and realities of the teaching profession. Subsequently, the student spends a full week participating in various activities in a K-12 or private school classroom.

T & L 315/316, Elementary Practicum, or T & L 317/318, Secondary Practicum (3 credits) This three-credit course is designed to provide effective experience with practical application in a K-12 school setting. Emphasis is on observation and reflection on data from the community, school and classroom environments and how each learner learns.

The Teacher Certificate will be awarded if the following provisions are met:

1. The candidate provides evidence of good moral character and personal fitness to teach. Fingerprinting is required. Background investigations are conducted by the Washington State Patrol, the FBI, and the Office of Professional Practices.
2. The degree is awarded and the professional preparation program is satisfactorily completed following these guidelines:
   • All course work in the professional core and in each primary endorsement is taken for a letter grade. Pass, fail grading is not acceptable.
   • No more than 3 semester hours of correspondence credit is permitted to fulfill professional core requirements.
   • The candidate has earned no grade lower than C (2.0) for course work in the professional core, primary, and supporting endorsements.
   • The C minimum grade requirement also applies to math and science requirements for K-8 and early childhood majors.
   • The cumulative g.p.a. and the g.p.a. computed separately for course work in the professional core and each primary endorsement area is not less than 2.5.
   • The student has completed all work within five years of admission to teacher preparation. Those not finishing within this time limit will be subject to all new program requirements.
3. The candidate has achieved a passing score on the state-wide admission to practice examination.
4. The candidate has made application and paid licensing fees.
Certificate Renewal/Continuing Certificate

Information is available upon request.

Degree Program Requirements

P-3 CERTIFICATE PROGRAM: EARLY CHILDHOOD

Candidates for the P-3 Early Childhood primary endorsement will satisfy degree requirements through the Department of Human Development. For certification purposes, the K-8 elementary education endorsement is required with the P-3 primary endorsement. The student should include the following course work within GER selections to meet prerequisite and admission to teacher preparation requirements: Engl 101, 201; FSHN 130, GenEd 110 and 111; Psych 105; Soc 101; SpCom 102; Math Proficiency (Math 251 and 252); 4 hours physical sciences and 3 hours sciences; Mus 153 or music proficiency exam.

Early Childhood

Primary Endorsement/Major: 38 hours
H D 101, 201, 204, 302, 304, 341, 342, 350, 410, 430, 446, 449, Sp Ed 301.

The required supporting endorsement in K-8 elementary education includes the following 65 hours: EdPsy 401, F A 390; Math 251, 252, Mus 388, Kin 473, T & L 300, 306, 307, 320/321, 352, 371, 385, 403, 415, 483.

Supporting Endorsement: 23 hours
This endorsement is available only to students completing the K-8 Elementary Education Certificate Program: H D 101. 201, 204, 302, 341, 342, 449, plus one from: H D 403, 410, 420.

K-8 CERTIFICATE DEGREE PROGRAM: ELEMENTARY EDUCATION (121 HOURS)

Candidate for the K-8 elementary education primary endorsement undergraduate program will satisfy degree requirements of the Department of Teaching and Learning. The degree will be bachelor of arts. The student should include the following course work within GER selections to meet prerequisite and admission to teacher preparation requirements. This course schedule does not include a supporting endorsement that may be recommended by school districts.

Freshman Year

First Semester
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Intercul [I, G, K] (GER) 3
Math 101, if necessary, or Elective 3
T & L 300 1
Tier I Science [Q] (GER) 3 or 4

Second Semester
Biological Sciences [B] (GER) 3 or 4
GenEd 111 [A] (GER) 3
Mus 153, if necessary 3
Psych 105 [S] (GER) 3
SpCom 102 [C] (GER) 3

Sophomore Year

First Semester
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological [B] or Physical [P] Sciences (GER) 3 or 4
Engl 201 [W], 301 [W], or 302 [W] (GER) 3
H D 101 [S] (GER) 3
Math 251 3
Certify Major

Second Semester
F A 390 2
Math 252 [N] (GER) 3
Physical Sciences [P] (GER) 3 or 4
T & L 301 and T & L 315/316 6

Junior Year

First Semester
Sp Ed 420 3
T & L 307, 320, and 385 9
T & L 330 3
Complete Writing Portfolio

Second Semester
Kin 473 2
Mus 388 2
T & L 306 [M], 352, and 371 9
T & L 483 2

Senior Year

First Semester
EdPsy 401 2
T & L 310 [M] 2
T & L 403 3
T & L 445 2
T & L 493 Teacher As Researcher 3
Tier III Capstone (GER) 3

Second Semester
T & L 415 16

1 During the freshman year, students must pass the Music 388 competency exam or take Music 153 or music proficiency exam.
2 Concurrent enrollment required.

4-12 CERTIFICATE DEGREE PROGRAM

Candidates preparing for 4-12 secondary, specific subject matter teacher certification must complete course work in the Secondary Professional Core and course work listed below for one of the 4-12 primary endorsement program areas. The candidate will certify a major with the subject matter department or in General Studies. In addition, the candidate must meet minimum admission requirements, make application, and be formally admitted to teacher preparation prior to enrolling in any professional education courses beyond T & L 300, 301, or 317/318. It is recommended that candidates plan to begin professional education courses in the sophomore or junior year to meet sequencing requirements. Students should include the following courses within their GER selections to fulfill prerequisite and admission to teacher preparation requirements. It is recommended that students complete a supporting endorsement/minor in addition to the primary endorsement/major.

Freshman Year

First Semester
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Psych 105 [S] (GER) 3
Tier I Science [Q] 3
Second Semester
Arts & Humanities [H,G] (GER) 3
Biological Sciences [B] (GER) 3
GenEd 111 [A] (GER) 3
Primary Endorsement/Major 2
SpCom 102 [C] (GER) 3

Sophomore Year

First Semester
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Engl 201 [W], 301 [W], or 302 [W] 3
Physical Sciences [P] (GER) 3
Primary Endorsement/Major 2
Second Semester
Intercul [I, G, K] (GER) 3
Primary Endorsement/Major 2
T & L 300 1
Certify Major
Certify In Teaching & Learning

Junior Year

First Semester
Primary Endorsement/Major 2 V
Supporting Endorsement 3 V
Second Semester
Primary Endorsement/Major 2 V
Supporting Endorsement 3 V

Senior Year

First Semester
Primary Endorsement/Major 2 V
Supporting Endorsement 3 V
Second Semester
Primary Endorsement/Major 2 V
Supporting Endorsement 3 V
Tier III Capstone (GER) 3
Fifth Year

First Semester  
Hours

EdPsy 402  
2
T & L 303  
3
T & L 328  
2
T & L 404  
3
T & L 450/451  
2

Second Semester  
Hours

T & L 415  
16

Chem 105 or 115; Chem 106 or 116; plus Chem 220, 222; 240 or 340, 341; Ph S 430.

Comparative Religion

Primary Endorsement/Major: None

Supporting Endorsement: 21 hours

Engl 335; Phil 101, 207; 314 or 315; one of Anth 303, Hist 273, 308, Soc 341; one of Phil 201, 220, 260, 460; one of Phil 300, 305, 310, 325, 335, 340, 420.

Drama

Primary Endorsement/Major: 47 hours

Drama 163, 260, 264, 294; 296 or 496; 360 or 463; 361, 362, 363, 365, 366, 402, 460; 464 or 466; 467, 494.

Supporting Endorsement: 20 hours

Drama 163, 260; 296 or 496; 361, 362; 365 or 366; 464 or 466.

Earth Science

Primary Endorsement/Major:

Student must receive a departmental degree in geology plus Astr 250, 390, C E 174, Ph S 430.

Supporting Endorsement: 22 hours

Astr 135, 390, C E 174; Geol 102, 206, 210, Ph S 430; plus one from Geol 201, 340, or 350.

English

Primary Endorsement/Major: 40 hours

Engl 209, 210, 300; 302 or 308; 305 or 306; 323, 324, 495 (or one from 492, 493, 494); one from Engl 255, 256, 254, 443, 445, Anth 256, 250, 355, 450; Engl 380, 381 or 382; one from Engl 383, 384, 385, 386, 387, 388, or 389; one from Engl 332, 333, 334, 335, 339, 366, 368 or 419; one from Engl 309, 311, 312, 321, 341, 345 or 346; one additional 300-400-level literature course; one creative writing course strongly recommended.

Supporting Endorsement: 21 hours

Engl 209, 210; 255 or 324; 302, 323, plus 6 additional hours from courses numbered above 300.

English/Language Arts

Primary Endorsement/Major: 58 hours

Engl 209, 210, 300; 302 or 308; 305 or 306; 323, 324, 495 (or one from 492, 493, 494); one from Engl 255, 256, 254, 443, 445, Anth 256, 250, 355, 450; Engl 380, 381 or 382; one from Engl 383, 384, 385, 386, 387, 388 or 389; one from Engl 332, 333, 334, 335, 339, 366, 368 or 419; one from Engl 309, 311, 312, 321, 342, 345 or 346; one additional 300-400-level literature course; one creative writing course strongly recommended. Plus at least 6 credits from each of the following groups: Journalism: Com 295, 410 or 415; Jour 305, 330 or 425, Speech: Com 245; SpCom 102 or 302, 185, 235, 385 or 485; Drama: 163, 260, 296, 361; 362, 365 or 366; 464 or 468.

Supporting Endorsement: None

Family and Consumer Sciences

Primary Endorsement/Major: 65 hours

Ag Ed 345, 440; two from AMT 215, 216, 317; FSHE 120/121, 130, H D 201, 202, 203, 204, 302, 320, 350, 406, 407, 409, 410, 480.

Supporting Endorsement: None

History

Primary Endorsement/Major: 42 hours

36 hours of Hist of which 21 must be 300-400-level. Program must include 6 hours of U.S., 6 hours of Europe, 6 hours of other fields (Africa, Asia, Canada, Latin America). Required courses: Hist 101, 102, 110, 111; one of Hist 230, 231, 270, 272, 273, 275; Hist 422, 469; 480 (not counted as part of the 36 hours); one from CAC 101, 111, 131, 151, 171, W St 200 or an approved substitute. A minor (18-21 hours) is required for a degree in history. It is suggested that this minor be one of the supporting endorsements for teacher certification.

Supporting Endorsement: 21 hours

Hist 101, 102, 110, 111; 422; 3 hours from Hist 230, 231, 270, 272, 273, 275; plus 3 hours of 300-400-level Hist.

Journalism

Primary Endorsement/Major: 39 hours

Students will be certified as majors in journalism if they earn a 2.7 g.p.a. in the following core courses and have a 2.5 cumulative g.p.a. Com 101, 245, 270, 295. Upon certification the following courses will be completed: Com 415, Jour 305, 330, 425, 475; one of Com 321, 410, 440, 450, 460; SpCom 324, 385, 401, 424; one from Com 409, 420, 470, 481, SpCom 335, 485, 488; plus one option from Jour 495 (6 credits) or 495 (3 credits) plus 3 credits from Com Lit or Com Devel, or 3 credits from Com Lit plus 3 credits from Com Devel.

Supporting Endorsement: 18 hours

Com 295, 410, 415; Jour 305, 330, 425.

Mathematics

Primary Endorsement/Major: 33 hours

Cpt S 153, Math 171, 172, 220, 273, 303, 315, 320, 330; 360 or 443; 398 plus one additional 3-hour Math course numbered above 300.

Supporting Endorsement: 19 hours

Math 171, 172, 220, 303; 325 or 360. In addition, the Math Department recommends Math 330.

Philosophy

Primary Endorsement/Major: None

Supporting Endorsement: 18 hours

Phil 101; 201; 260; 335 or 340; one from Phil 360, 365, 370, 460; one from Phil 290, 305, 310, 325, 420.

Physics

Primary Endorsement/Major: 30 hours

Astr 345 or Phys 380; Ph S 430; Phys 201, 202, 303, 304, 320, 330, 341; 410, 415; 499 (4 hours includes observing Phys 101 and 102.)

Supporting Endorsement: 21 hours

Ph S 430; Phys 201, 202, 303, 499 (4 hours includes observing Phys 101 and 102.)
Political Science
Primary Endorsement/Major: 57 hours
Pol S 101, 102, 103, 206, 300, 420, 437, 438, plus
9 hours 300-400-level Pol S electives. In addition
a supporting endorsement in History is required:
Hist 101, 102, 110, 111; one from Hist 230, 231,
270, 272, 273, 275; Hist 422, 480; plus 3 hours
300-400-level Hist elective.
Supporting Endorsement: 21 hours
Hist 422, Pol S 101, 102, 103, 206, plus 6 hours
of 300-400-level electives in Pol S. (Pol S 300, 420,
437, 438 are recommended.)

Speech
Primary Endorsement/Major: 36 hours
Speech Communication: Students will be certified
as majors in speech communication if they earn a
2.7 g.p.a. in the following core courses and have a
2.5 cumulative g.p.a.: Com 295 plus two of Com
101, 245, or 270. Upon certification, these require-
ments will be met: Drama 260, 361, SpCom 102 or
302; 185 or 385; 235; 251 or 351; 324 or 334; plus
two from SpCom 335, 401, 424, 485, 488.
Supporting Endorsement: 18 hours
Com 245; SpCom 102 or 302; 335 or 401; 351 or
488; one from SpCom 185, 235, 351 or 448, 385
or 485; 324 or 334. Drama 260 and 361 are recom-
mended.

K-12 CERTIFICATE PROGRAMS
Candidates for K-12 certificates shall declare a ma-
jor with the subject-matter department or the De-
partment of Teaching and Learning and meet the
GER and degree requirements of the chosen depart-
ment. Typically, students desiring primary endorse-
ment in one of the foreign languages or music will
follow the Professional Education Core listed in the
4-12 Certificate Program section, while students
desiring primary endorsement in reading, bilingual
education, English as a second language, or special
education will follow K-8 elementary education re-
quirements. Students detouring from this typical
pattern should consult with an advisor about appro-
priate professional core courses.
In addition to meeting requirements of the de-
gree-granting department, the student must meet admis-
sion requirements listed in this section and
make formal application to the teacher preparation
program prior to enrolling in any professional edu-
cation coursework.

Bilingual Education
Primary Endorsement/Major: none
Supporting Endorsement: 20 hours
T & L 333, 335, 401, 411, 414; one of T & L 410,
412, 465, 480, 515, 526; one of Anth 350, 355,
450, Engl 354, 443, 458, T & L 339, 472, 473, 537;
plus demonstrated proficiency in a language other
than English.

English as a Second Language
Primary Endorsement/Major: None
Supporting Endorsement: 20 hours
T & L 333, 401, 414, 339; one of T & L 335, 410,
515, 526; one of T & L 411, 412, 465, 480; one of
Anth 350, 355, 450, Engl 354, 443, 458, T & L 472,

Foreign Languages and Literatures
Primary Endorsement/Major: 45-49 hours
French: Fren 101, 102, 203, 304; 307 or 407; 308
or 408; 320, 322, 409; For L 340; two from Fren
306, 310, 407, 408; two from Fren 315, 316, 416;
two from Fren 420, 421, 422, 423, 424, 425, 427.
German: Ger 101, 102, 203, 304, 305, 317; For
L 340; two courses from Ger 310, 312, 412; five from
Russian: Rus 101, 102, 203, 304, 311, 315, 317,
320, 323; For L 340; plus 7 hours from Rus 305
(maximum 2 hours), 311, 320, 424, 426, 499.
Spanish: Span 101, 102, 203, 304, 306, 307, 308,
311, 315, 316, 320, 407, 408; For L 340; plus 9
hours from Span 310, 391, 424, 425, 427, 434, 435.

Supporting Endorsement: 19-29 hours
French: For L 340, Fren 101, 102, 203, 304, 308;
310, 320, or 322; one from 306, 307, 310, 315,
316, 320, 322, 407, 408, 409, 416, 420, 421, 422,
423, 424, 425, 427.
German: For L 340, Ger 101, 102, 203, 304, 317;
two from Ger 310, 312, 412.
Japanese: For L 340, Japn 101, 102, 303, 304.
Russian: For L 340; Rus 101, 102, 203, 304, 311;
6 hours (at least 3 of which must be taught in Rus-
ian) from Rus 305 (maximum 2 hours), 315, 317,
320, 323, 424, 426, 499 (maximum 1 hour).
Spanish: For L 340, Span 101, 202, 304, 307,
308, 311; plus 6 additional hours from Span 306,
310, 315, 316, 320, 407, 408, 424, 425, 427, 434,
435.

Music
Each primary endorsement requires the passing of a
piano proficiency examination, an upper-division
exam, and a solo half-recital.

Political Science
Instrumental: 69 hours. Mus 161, 251, 252, 253, 254, 351, 352, 353, 354, 360; 453 or 455; 480, 481, 482, 487, 490, 491, 493, 494, 497. Instrumental Performance Studies: 14 hours minimum of which 2 hours must be at the 400 level. Performing Groups: 7 hours, minimum of 1 hour during each of seven semesters, to include at least 1 hour of Mus 435. Minimum of 4 hours of instrumental ensemble experience.

If the above requirements along with the graduation requirements of the College of Sciences and Arts are met, the degree will be Bachelor of Music.

Supporting Endorsement:
Each supporting endorsement requires the passing of a piano proficiency exam.

Broad: 39 hours. Mus 161, 251, 252, 253, 254, 480, 481, 487, 488, 489, 490, 491, 493, 494. Performance Studies: 4 hours. Performing Groups: 4 hours. Total performance experience (performance studies and performing groups) must include a minimum of 4 hours in choral/vocal music and 4 hours in instrumental music at the 200-level or above.

Choral: 25 hours. Mus 161, 251, 252, 480, 481, 488, 489, 490, 491. Two hours performance studies in choral/vocal music at the 200-level or above. Two hours performing groups in choral/vocal music at the 200-level or above.

Instrumental: 27 hours. Mus 161, 251, 252, 480, 481, 487, 490, 491, 493, 494. Two hours performance studies in instrumental music at the 200-level or above. Two hours performing groups in instrumental music at the 200-level or above.

Reading
Primary Endorsement/Major: 30 hours
Students in reading complete a Bachelor of Arts in Education which consists of the elementary core courses plus the following courses in the primary endorsement: T & L 306, 307, 320/321, 431, 433, 450/451, 462/463 plus 13 hours from: Anh 450, Drama 464, SHS 205, 371, 473, SpCom 251, T & L 308/309.

Supporting Endorsement: 23 hours

Special Education
Primary Endorsement/Major: 36 or 37 hours
This primary endorsement must be taken in conjunction with another primary endorsement in K-8 or P-3, 4-12, or K-12. Students preparing to teach K-8 or P-3 take T & L 462/463; Sp Ed 301, 401, 402, 403, 404, 420, 440, 478, 490 (4 credits); two from Kin 484, SHS 205, 281, 371, 469, 473. Students preparing to teach specific subject matter (4-12, K-12) take all of the foregoing plus T & L 306, 352, Math 251, 252.

Supporting Endorsement: 26 hours
Students preparing to teach K-8 or P-3 take Sp Ed 301, 401, 402, 403, 404, 440, 490 (4 credits); one from Sp Ed 409, 420, 478. Students preparing in 4-12 or K-12 endorsement areas take all of the foregoing plus T & L 306; 320/321 or 462/463; 352; Math 251, 252.

Description of Courses
Teaching and Learning

T & L
300 Introductory Field Experience 1 (0-3) Supervised field experience for preservice teachers designated as an orientation to education. S, F grading.

301 Learning and Development 3 Prereq Psych 105, T & L 300; c// in T & L 315/316 or 317/318. Reflective inquiry about human learning, development, diversity, and individual differences, examination of implications for teaching and education reform.


304 Introduction to Middle Level Education 2 Prereq T & L 300. Study of adolescents; middle level organization and instructional strategies including field component at Lincoln Middle School.


308/309 Teaching Writing K-12 2 Prereq admission to teacher prep program; EdPsy 301 or c//. T & L 300. For preservice teachers. Improving writing skills; preparing effective writing lessons.

310/311 [M] Classroom Management 2 Prereq certified education major, T & L 301; 315 or 316. Strategies for developing positive and supportive classroom learning environments.

315/316 Elementary Practicum and Seminar 3 (0-9) Prereq c// in T & L 301. Extended classroom experience prior to student teaching providing gradual classroom involvement and teaching responsibility. S, F grading.

317/318 Secondary Practicum and Seminar 3 (1-6) Prereq c// in T & L 301 plus 10 semester hours in subject-matter credit. Extended classroom experience prior to student teaching providing gradual teaching responsibility. S, F grading.

319 Literacy Practicum 1 (0-3) Practicum for students serving as literacy tutors in schools and agencies; methodologies, at-risk issues and community-school partnerships. S, F grading.

320/321 Elementary Reading Methods 3 Prereq certified education major, T & L 301, c// in 307, c// in 385. Methods and materials for teaching reading in elementary school.

324 Methods of Teaching Foreign Languages 3 Same as For L 340.


330 Diversity in Schools and Society 3 Gender, linguistic, cultural and learning diversity; concepts, issues, approaches to educating students in a diverse society.

333 Introduction to English as a Second Language (ESL) 3 Foundations of ESL with attention to basic concepts of second language processing in educational settings.

335 Bilingual Bicultural Education 3 Same as CAC 356.

339 Communicating in Diverse Classrooms 3 Selected topics dealing with linguistic diversity, cross-cultural communication, language development and language use.

352 Teaching Elementary Mathematics 3 Prereq certified education major, Math 251, 252; T & L 301, c// in T & L 306, c// in 371. Methods and materials for teaching mathematics in elementary and middle school.

356 Chicanas/os and the Educational System 3 Same as CAC 355.

371 Teaching Elementary Science 3 Prereq certified education major, science GEs; T & L 301, c// in 306, c// in 352. Teaching methods and materials in elementary and middle school science.

385 Elementary and Middle School Social Studies 3 Prereq certified education major; T & L 301, c// in T & L 307, c// in 320. Teaching methods and materials in elementary and middle school social studies.

390 Elementary School Art Education 2 (1-2) Prereq T & L 301 or c//. Creative methods for utilizing art media in the elementary classroom.

401 Practicum in Bilingual/Multicultural Education 2 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq T & L 333, 335, or graduate standing. Work with students from diverse cultural and linguistic backgrounds in an educational setting.

403/404 Social Foundations of Curriculum 3 Prereq certified education major; T & L 301, 315/316. The school; historical, and philosophical foundations of education; school law.

410 Theoretical Foundations for the Schooling of Language Minority Students 3 Prereq T & L 333, 335, or graduate standing. Theoretical foundations related to research and instructional strategies for effective schooling of language minority students. Credit not granted for T & L 410 and 510.

411 Bilingual Methods and Materials Across Content Area 3 Prereq T & L 333, 335, or graduate standing. Approaches, methods, and materials across content areas for the bilingual classroom.

412 Language and Cultural Factors in Mathematics 3 Prereq T & L 352 or teaching experience. Research and instructional strategies related to linguistic and cultural influences on learning math. Credit not granted for both T & L 412 and 512.

414 ESL Across Content Areas 3 Prereq T & L 333, teaching experience. Research and instructional methods related to English language acquisition across content areas. Credit not granted for both T & L 414 and 514.

415 Directed Teaching V 6 (1-15) to 16 (1-45) Prereq certified education major, program completion, WSP/FBI/SP1 clearance, 2.5 g.p.a. overall, in primary endorsement and professional courses. By interview only. Semester of supervised teaching in K-12 schools; seminars reflecting on effective teaching. S, F grading.
431 Innovations in Reading 2 Prereq admission to teacher prep program. Aspects of teaching reading; current programs and trends; activities and materials for enrichment. Credit not granted for both T & L 431 and 530.

433 Children’s Literature in the Curriculum 2 Prereq T & L 307 or teaching experience. Theory and classroom applications for selecting and using literature and storytelling in content areas; reading, writing, language development, the arts. Credit not granted for both T & L 433 and 532.

445/446 Educational Technology Used in the Schools 2 (1-3) or 3 (2-3) Prereq certified education major; T & L 301, 315/316. Consideration of all technologies in schools, applications for their use, some production techniques and instructional methodologies.

450/451 Content Literacy in Middle and Secondary Schools 2 or 3 Prereq admission to teacher prep program; T & L 300, T & L 301 or c/l. Reading and writing in content areas, grades 4-12; integrating service learning and community of learners approaches in teaching literacy skills.

452 Content Area Reading and Study Skills 2 Practicum Prereq may be repeated for credit; cumulative maximum 3 hours. Prereq T & L 320 or 450. Development and delivery of vocabulary, comprehension, and study skills.

455 Educational Uses of Microcomputers 2 or 3 Prereq admission to teacher prep program; T & L 300; T & L 301 or graduate standing. Types and functions of educational software, evaluation criteria, designing instructional programs, and classroom considerations.

462/463 Corrective Reading in the Classroom 2 Prereq admission to teacher prep program; T & L 300, 301. Investigation, formulation, application of informal and formal assessment for classroom instruction; specific needs of children with reading difficulties.

472 Technology for Language Learning 3 Prereq T & L 333, 335, or graduate standing. Computer technologies addressing the needs of language minority students and their teachers (including audio, video, graphics, and text).

480 Multicultural Education in a Global Society 3 Multicultural and multilingual education from a global perspective; development of multicultural curriculum. Credit not granted for more than one of T & L 480, 580, 582.

483 School and Family Health Education 2 Prereq certified education major, T & L 301. Methods, materials, research, and resources to plan and implement comprehensive health education for all students.

487 Global Geography 3 Prereq declared major; open to non-education majors. World geography as a global perspective; education in the contemporary world: the interaction between human societies and the natural environment.

490 Instructional Practice 2 V (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 8 hours. S, F grading.

497 Topics in In-Service Education V 1-3 May be repeated for credit; cumulative maximum 9 hours. New developments and applications on selected in-service and staff development topics.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

504 Early Childhood Programs for Children at Risk Identification of children at risk; their needs, appropriate curriculum, and program evaluation; description of parent-teacher community relationship and outreach.

506 Multicultural Classroom Instruction and Management 4 Instructional and management strategies for maximizing students’ opportunities to learn in a multicultural setting.

507 Developing Literacy in a Multicultural Setting I 3 Theoretical foundations of language arts in a multicultural setting.

508 Teaching Literacy in a Multicultural Setting II 3 Prereq T & L 510. Applying research-based assumptions to teaching language arts in a multicultural setting.

510 Theoretical Foundations for the Teaching of Reading 3 Graduate-level counterpart of T & L 410; additional requirements. Credit not granted for both T & L 410 and 510.

511 Teaching Poetry to Children and Young People 3 Prereq T & L 303, 307, or teaching experience. Elements and forms of poetry for children and young people; selection and utilization in the school curriculum.

512 Language and Cultural Factors in Mathematics 3 Graduate-level counterpart of T & L 412; additional requirements. Credit not granted for both T & L 412 and 512.

513 Seminar in Middle School Education 3 Prereq teaching experience. Curriculum patterns and recent research regarding instruction and materials in the contemporary middle school.

514 ESL Across Content Areas 3 Graduate-level counterpart of T & L 414; additional requirements. Credit not granted for both T & L 414 and 514.

515 The Education of Language Minority Students 3 Prereq K-12 teaching experience. Issues in the education of language minority students.

520 Topics in Special Student Populations V 1-4 May be repeated for credit; cumulative maximum 6 hours. For K-12 teachers. Knowledge of special student populations and guidance in developing appropriate curricula. Cooperative course taught jointly by WSU and UI (Ed 503).

521 Topics in Education V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of education.

525 Classroom Management Seminar 2 or 3 Contemporary issues in management of elementary, middle school, and secondary classrooms.

526 Research in Multicultural Education 3 Prereq T & L 515 or teaching experience. Research and instructional practices focusing on multicultural education.

527 Seminar in Teacher Education Instruction 1 May be repeated for credit; cumulative maximum 4 hours. Teacher preparation program components and rationale, university teaching strategies, and evaluation methods. S, F grading.

528 Content Area Reading Instruction: Theory and Practice 3 For teachers, supervisors, and administrators in elementary, middle, and secondary schools; influence of research on the design of reading strategies.

530 Innovations in Reading 2 Graduate-level counterpart of T & L 431; additional requirements. Credit not granted for both T & L 431 and 530.

532 Children’s Literature in the Curriculum 2 Prereq T & L 320 or teaching experience. Graduate-level counterpart of T & L 433; additional requirements. Credit not granted for both T & L 433 and 532.

534 Study Skills and Content Area Instruction 2 or 3 Research and practices related to time management, concentration and memory, note-taking, listening, comprehension and thinking skills; applications in subject-matter instruction.

537 Seminar in Language, Literacy, and Culture 2 or 3 Prereq T & L 411, graduate standing. Interrelationships between schools, literacy, and student cultural background.

538 Writing Across the Curriculum 3 Writing for learning at grade levels K-12.

539 Innovations in Language Arts 3 Prereq T & L 303, 320, or teaching experience. The most recent developments in language arts instruction for preservice and in-service teachers K-12.

540 Elementary School Social Studies 3 Prereq teaching experience. Elementary structures of various social sciences; research findings related to instruction; classroom applications and materials.


545 Oral Language Development: Roots of Literacy 3 Prereq teaching experience. Research on children’s oral language development; applications to elementary school reading and writing.

546 Teaching Written Expression in Elementary School 3 Prereq teaching experience. Research on children’s written language development; application to elementary school classroom.

547 Teaching Folk Literature to Children and Adolescents 3 Prereq T & L 307 or teaching experience. Folk literature as a genre in child and adolescent literature; curriculum applications; reading, language development, social studies, creative expression.

548 Teaching Adolescent Literature 3 Prereq T & L 307 or teaching experience. Evaluating, selecting, and using literature for middle school and teenage students.

549 Communicating in a Multilingual Society 3 Prereq T & L 333, 335 or graduate standing. Study of language in social and educational context and its relation to cultural and linguistic diversity.

551 Psychology of Reading 2 or 3 Prereq T & L 320 or 450/451; teaching experience. Psychological, perceptual, motivational, developmental and physiological aspects of reading.

552 Literacy Development 1 3 Review of current research and approaches to instruction in the development of literacy in elementary and middle grades.

553 Diagnosis and Treatment of Reading Disability 4 (3-3) Prereq T & L 320/321 or 450/451. Remedial techniques for experienced teachers, remedial reading teachers, and reading consultants; causes of disability, testing, diagnosis, and remediation; tutoring.

554 Elementary School Reading 2 Theory and strategies of teaching reading in elementary school.
555 Seminar in Literacy Development 3 May be repeated for credit; cumulative maximum 6 hours. Current and historical research in reading/language arts, infancy through college and adult years; papers presented by faculty, invited speakers, and students.

556 Literacy Development II 3 Review of current research and approaches to instruction in the development of literacy in elementary and middle grades.

557 Research in Reading 2 or 3 Prereq EdPsy 505; T & L 551; teaching experience. Reading research, theoretical and applied, related to the teaching of reading.

558 Improving Comprehension through Literature 3 Prereq teaching experience. Key theoretical concepts and their implications for improved comprehension instruction, using children's literature.

560 Research in Teaching 3 May be repeated for credit; cumulative maximum 6 hours. Prereq teaching experience. Recent developments in research on teaching; both quantitative and qualitative research methodologies emphasized.

561 Elementary School Mathematics 3 Prereq T & L 352; teaching experience. Research on curriculum and instruction issues in elementary school mathematics.


563 Seminar in Precollege Mathematics Education 3 Prereq T & L 542 or 562. May be repeated for credit; cumulative maximum 6 hours. Research on curriculum and instruction in mathematics education in grades K-12.

564 Elementary School Mathematics Methods 3 Introduction to research, theory, and methods of teaching K-8 mathematics; emphasis on integrating theory and practice.

567 Elementary School Science 3 Prereq T & L 371; teaching experience. Theories and research underlying science programs with classroom implications.

572 Elementary School Science Methods 3 Theoretical base to design and implement appropriate standards-based elementary science instruction.

574 Science for All: An Individual and Multicultural Perspective 3 Prereq teaching experience. Implications of cultural and individual diversity for understanding western scientific and mathematical thought; an activity-based, educational perspective.

577 The At-Risk Learner 2 Strategies for working with at-risk students.

578 School and Community Interventions for At-Risk Students 2 How schools and communities work together to meet the at-risk challenge.

580 Multicultural Education in a Global Society 3 Graduate-level counterpart of T & L 480; additional requirements. Credit not granted for more than one of T & L 480, 580, 582.

582 Multicultural and Global Perspectives in Education 2 Concepts, theories and applications of multicultural and global perspectives in teaching and learning. Credit not granted for more than one of T & L 480, 580, 582.

583 Problem Solving in Elementary and Middle Level Education 4 Prereq admission to MIT program. Integration of knowledge and skills to address complex cases in teaching and learning.

585 Issues in At-risk Education 2 or 3 School and community resources to assist at-risk students and families.

588 Action Research: Teachers as Research 3 Prereq teaching experience. Theoretical concepts, research, issues, models, and strategies for implementation of action research.

590 Internship V 2-6 May be repeated for credit; cumulative maximum 12 hours. By interview only. Internship in professional positions. S.F grading.

593 Pre-internship and Seminar 2 (1-3) Instructi onal practice in diverse classroom settings and reflection on that practice. S, F grading.

594 Module: Art and Music Education 2 Interdisciplinary self-study module covering the theory and classroom practice of art and music.


597 Topics in In-Service Education V 1-3 May be repeated for credit; cumulative maximum 9 hours. Graduate-level counterpart of T & L 497; additional requirements. Credit not granted for both T & L 497 and 597. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

706 Sp Ed Education of Exceptional Children 3 Classification, developmental characteristics, and etiology of exceptional children; research and methods of instruction in the classroom.

401 Teaching Students with Disabilities 3 Prereq Sp Ed 301; certified major; credit in Sp Ed 490 for 2 credits or graduate standing. Intervention and monitoring strategies for managing academic, social, and problem behaviors in classroom settings. Credit not granted for both Sp Ed 401 and 402.

402 Assessment and Curriculum for Students with Disabilities 4 Prereq Sp Ed 301; certified major; credit in Sp Ed 490 for 2 credits or graduate standing. Methods of assessment, curriculum development, and modification for students with mild disabilities. Credit not granted for both Sp Ed 401 and 502.

403 Secondary Education for Students with Disabilities 3 Prereq Sp Ed 301; certified major or graduate standing. Overview of practice in the schools for secondary students with disabilities; assessment, methods, and curriculum development. Credit not granted for both Sp Ed 403 and 503.

404 Professional Skills in Special Education 3 Prereq Sp Ed 301 and certified major or graduate standing. Communication, problem solving, liability, record keeping, professional development, legal issues, and program evaluation. Credit not granted for both Sp Ed 404 and 504.

409 Early Childhood Special Education 3 Prereq Sp Ed 301 or credit. Assessment, curriculum, and instructional techniques for teaching young children with handicaps and their families in a variety of settings. Credit not granted for both Sp Ed 409 and 509.

420 Teaching in Inclusive Classrooms 3 Prereq certified education major. Methods for teaching students with disabilities in general education classrooms. Credit not granted for both Sp Ed 420 and 520.

430 Special Topics in Instruction V 1-3 May be repeated for credit; cumulative maximum 6 hours. New developments in research and practice in program development.

431 Special Topics in Program Development V 1-3 May be repeated for credit; cumulative maximum 6 hours. New developments in research and practice in program development.

440 Methods in Intensive Educational Supports 3 Prereq Sp Ed 301, certified major, or graduate standing. Assessment, curriculum development and modification, and instructional methods for students with severe disabilities. Credit not granted for both Sp Ed 440 and 540.

475 Career Services and Programs for Persons with Disabilities 3 Same as CoPsy 478.

490 Practicum in Special Education V 1-3 May be repeated for credit; cumulative maximum 8 hours. Supervised field experience in special education. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Teaching Students with Disabilities 3 Prereq credit in Sp Ed 301 or 500. Graduate-level counterpart of Sp Ed 401; additional requirements. Credit not granted for both Sp Ed 401 and 501.

502 Assessment and Curriculum for Students with Disabilities 4 Graduate-level counterpart of Sp Ed 402; additional requirements. Credit not granted for both Sp Ed 402 and 502.

503 Secondary Special Education for Students with Disabilities 3 Graduate-level counterpart of Sp Ed 403; additional requirements. Credit not granted for both Sp Ed 403 and 503.

504 Professional Skills in Special Education 3 Graduate-level counterpart of Sp Ed 404; additional requirements. Credit not granted for both Sp Ed 404 and 504.

509 Early Childhood Special Education 3 Graduate-level counterpart of Sp Ed 409; additional requirements. Credit not granted for both Sp Ed 409 and 509.

520 Teaching in Inclusive Classrooms 3 Graduate-level counterpart of Sp Ed 420; additional requirements. Credit not granted for both Sp Ed 420 and 520.

522 Topics in Special Education V 1-4 May be repeated for credit; cumulative maximum 8 hours. Recent research developments, issues and applications in selected areas of special education.

540 Methods in Intensive Educational Supports 3 Graduate-level counterpart of Sp Ed 440; additional requirements. Credit not granted for both Sp Ed 440 and 540.

575 Career Services and Programs for Persons with Disabilities 3 Same as CoPsy 578.

590 Practicum in Special Education V 1-4 May be repeated for credit; cumulative maximum 8 hours. Supervised experiences in application of theories and practices in special education. S, F grading.
600 Special Projects or Independent Study Variable credit. S,F grading.

College of Veterinary Medicine

The College of Veterinary Medicine offers courses of study leading to the degrees of Doctor of Veterinary Medicine, Bachelor of Science in Veterinary Science, Master of Science in Veterinary Science, and Doctor of Philosophy. Additional information, including requirements for admission, is contained in the general information section of this catalog.

The College of Veterinary Medicine at Washington State University is accredited by the American Veterinary Medical Association.

The following program is an outline of the minimum requirements necessary for application to professional study in the College of Veterinary Medicine.

PREVETERINARY REQUIREMENTS

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Arts and Humanities</td>
<td>3-6</td>
</tr>
<tr>
<td>2. Communication Proficiency</td>
<td>6</td>
</tr>
<tr>
<td>(3 hours must be in written communications)</td>
<td></td>
</tr>
<tr>
<td>3. Intercultural Studies</td>
<td>3</td>
</tr>
<tr>
<td>4. Social Sciences</td>
<td>3-6</td>
</tr>
<tr>
<td>5. World Civilizations</td>
<td>6</td>
</tr>
<tr>
<td>6. Math Proficiency</td>
<td>3</td>
</tr>
<tr>
<td>7. Writing Portfolio</td>
<td></td>
</tr>
</tbody>
</table>

Courses to meet the above requirements must be selected from the list under the General Education Requirements for Graduation section of this catalog.

8. Physical and Biological Sciences 33-35
Except under unusual circumstances applicants will be expected to have completed courses as indicated in each of the following: chemistry including organic and biochemistry; mathematics; physics; zoology or general biology; genetics.

9. Electives
   Totals Hours Required 60

BACHELOR OF SCIENCE DEGREE IN VETERINARY SCIENCE

The Bachelor of Science degree in Veterinary Science combines credits earned in both the preprofessional and professional programs. The degree is available only to students who have been admitted to the professional program. This degree was designed to benefit veterinary medical students in obtaining employment, applying for scholarships, and qualifying for graduate-level course enrollments. A minimum of 120 semester hours is required for the degree. The minimum basic requirements are:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Requirements (see above)</td>
<td>60 additional hours of acceptable university credit of which 34 hours must be 500-level or above courses in the professional curriculum of the College of Veterinary Medicine</td>
</tr>
<tr>
<td>Total semester hours</td>
<td>120</td>
</tr>
</tbody>
</table>

Degree Program Requirements

PROFESSIONAL CURRICULUM

The professional curriculum for the Doctor of Veterinary Medicine degree is outlined below. A total of 147 semester hours are required for graduation. All courses required in the professional program are 500P-600P-level courses.

First Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>V M 500P</td>
<td>1</td>
</tr>
<tr>
<td>V M 510P</td>
<td>10</td>
</tr>
<tr>
<td>V M 511P</td>
<td>4</td>
</tr>
<tr>
<td>V M 568P</td>
<td>1</td>
</tr>
</tbody>
</table>

Second Semester

| V M 512P | 3 |
| V M 520P | 5 |
| V M 521P | 3 |
| V M 534P | 3 |
| V M 545P | 3 |

Second Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>V M 522P</td>
<td>4</td>
</tr>
<tr>
<td>V M 535P</td>
<td>3</td>
</tr>
<tr>
<td>V M 536P</td>
<td>4</td>
</tr>
<tr>
<td>V M 546P</td>
<td>6</td>
</tr>
<tr>
<td>V M 589P</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester

| V M 523P | 4 |
| V M 537P | 4 |
| V M 551P | 4 |
| V M 585P | 2 |
| V M 587P | 3 |
| V M 588P | 3 |

Third Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>V M 543P</td>
<td>2</td>
</tr>
<tr>
<td>V M 552P</td>
<td>5</td>
</tr>
<tr>
<td>V M 553P</td>
<td>3</td>
</tr>
<tr>
<td>V M 554P or 555P</td>
<td>1</td>
</tr>
<tr>
<td>V M 569P</td>
<td>6</td>
</tr>
</tbody>
</table>

Second Semester

| V M 570P | 6 |
| V M 571P | 4 |
| V M 572P | 2 |
| V M 590P | 3 |

Electives

Fourth Year

The fourth year begins immediately after the end of the spring semester of the third year (May) and continues for 12 consecutive months. Fourth-year professional students are required to enroll in course work for a minimum of 44 weeks of their final year. All students must participate in mandatory clinical rotations in the large- and small-animal clinics, including emergency services and anesthesia. In addition, each student must select a species-oriented curricular track for the fourth year. Each track has its own course requirements and elective opportunities. All students must prepare and present a senior paper under faculty supervision.

Honors Program in Veterinary Medicine for Selected Students

A new program for admission of highly selected and academically qualified students to the Washington State University College of Veterinary Medicine has been established. This program admits students directly to the university and the college upon graduation from high school. This is a six-year program leading to the Doctor of Veterinary Medicine degree after satisfactory completion of the curriculum. It consists of two years of a unique undergraduate preprofessional education and the four-year professional program. The first two years of this program are a combination of Honors Program courses and regular university classes which fulfill the preclinical requirements. The last four years are the traditional Doctor of Veterinary Medicine program plus the completion of an honors thesis. Application should be made to the Honors Program as soon as students decide to enter WSU, because number of positions is limited.

Joint Program in Animal Science and Veterinary Medicine

See Department of Animal Sciences.

Preparation for Graduate Study

Students meeting the requirements of the Graduate School and having the Doctor of Veterinary Medicine degree or a bachelor’s degree in allied fields may take work leading to an advanced degree in the College of Veterinary Medicine. Students without the DVM degree will take courses in preclinical fields (anatomy, microbiology, pathology, physiology, parasitology, and pharmacology).

The undergraduate preparation should include two semesters of organic chemistry or one semester of organic chemistry and one semester of physiological chemistry; one year of general physics and one semester of college algebra; one semester of comparative vertebrate anatomy and one semester of physiology.

A combined degree program is available which allows simultaneous pursuit of both DVM and graduate degrees. Admission to the College of Veterinary Medicine and to the Graduate School are prerequisite for entry into the combined degree program.

Department of Veterinary and Comparative Anatomy, Pharmacology, and Physiology

Description of Courses

Veterinary Anatomy

V An 308 Functional Anatomy of Domestic Animals 3 (2-3) Prereq Bio S 104; Chem 102. For majors in the College of Agriculture and Home Economics. Macroscopic functional morphology of domestic animals.

413 Advanced Anatomy 3 (1-6) 1 May be repeated for credit; cumulative maximum 6 hours. Prereq V M 512P. Microscopic and gross anatomy of selected organ systems. Cooperative course taught by WSU, open to UI students (VS 413).

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

513 Advanced Neuroanatomy 4 Prereq anatomy or physiology course that included neuroanatomy. Advanced gross and microscopic anatomy of the mammalian central nervous system.

592 Seminar 1 May be repeated for credit. Cooperative course taught by WSU, open to UI students (VS 592).

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Veterinary Medicine

V M 350 Skeletal Preparation 1 May be repeated for credit; cumulative maximum 3 hours. Technique of skeletal preparation is mastered by undertaking and completing project. Skeleton becomes property of student. S, F grading.

508P (539) Research Orientation and Resource 1 Prereq student in veterinary research tract. Resources and important issues for identifying and developing a focused area of scholarly activity in biomedical research. S, F grading.

509P (540) Research Issues, Ethics, and Literacy 1 May be repeated for credit; cumulative maximum 3 hours. Prereq student in veterinary research tract. Philosophy and history of methodological, ethical and political issues relevant to biomedical research using selected monographs and essays. S, F grading.


511P (401) Veterinary Anatomy I 4 (0-12) Prereq admission to Vet Med or graduate student in Vet S. Detailed macroscopic functional morphology of the dog and cat. Cooperative course taught by WSU, open to UI students (VS 401).

512P (403) Veterinary Anatomy II 3 (0-9-3) Prereq V M 511P. Detailed macroscopic functional morphology of domestic animals. Cooperative course taught by WSU, open to UI students (VS 402).

517P (512) Applied Anatomy of Small Animals 2 (1-3) Prereq V M 512P. Applied anatomy of small animals including surgical anatomy. Cooperative course taught by WSU, open to UI students (VS 512B).

518P (511) Applied Anatomy of Large Animals 2 (1-3) Prereq V M 512P. Applied anatomy of large animals including surgical anatomy. Cooperative course taught by WSU, open to UI students (VS 511A).

519P (503) Anatomy of the Avian and Exotic Species 1 (0-2) Prereq V M 511P. Detailed macroscopic functional morphology of selected avian and exotic species, emphasizing the specialized anatomical adaptations of these animals.

520P (518) Veterinary Physiology 5 (4-3) Prereq V M 510P. Physiology of domestic animals. Cooperative course taught by WSU, open to UI students (VS 518).

521P (517) Mammalian Neuroscience 3 (2-3) Prereq V M 510P. Neuroanatomical and neurophysiological bases of veterinary neurology, emphasizing central and peripheral sensory and motor systems. Cooperative course taught by WSU, open to UI students (VS 517). (g)

522P (531) Pharmacology/Toxicology I 5 (4-3) Prereq third year in Vet Med. Pharmacology and toxicology of the systems of domestic animals. (g)

523P (533) Pharmacology/Toxicology II 4 (3-3) Prereq V M 522P. Pharmacology and toxicology of the systems of domestic animals. Continuation of V M 522P. Cooperative course taught by WSU, open to UI students (VS 533). (g)

525P (514) Animals Behavior for the Practicing Veterinarian 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq by interview only. Study of the treatment of behavioral problems and training of domestic animals.

526P (510) Domestic and Exotic Animal Behavior 2 (1-3) Prereq by interview only. Advanced study of animal behavior, emphasizing difference between exotic and domestic animal behavior. Cooperative course taught by WSU, open to UI students (VS 510).

527P Clinical Animal Behavior V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq by interview only. Participation in the treatment of animals with behavioral problems and in animal behavior training classes for clients and their animals.

Veterinary Pharmacology and Toxicology, and Physiology

V Ph 465 Reverence for Life 1 or 2 Ethical and scientific issues relating to human responsibilities to all forms of life with emphasis on animals.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Perspectives in Pharmacology and Toxicology 1 Prereq P/T major. By interview only. Historical perspectives, current characteristics and trends in pharmacology and toxicology. S, F grading. Cooperative course taught by WSU, open to UI students (VS 501B).

505 Design and Analysis of Biomedical Experiments 4 Prereq Math 107, statistics course. Design of experiments with application to clinical and basic biomedical research; choosing, applying, and evaluating appropriate data analysis methods.

521 Cardiorespiratory Systems 3 (2-3) A system and quantitative treatment of physiological processes in the heart, blood vessels, and lungs. Cooperative course taught by WSU, open to UI students (VS 521).

525 Special Topics in Veterinary and Comparative Pharmacology 1 (0-3) Prereq V M 522P. Practical veterinary pharmacology techniques and clinical applications.

529 Behavioral Mechanisms in Physiology 3 Examination of the physiological transduction mechanism that enables animals to interact behaviorally with their environment.

529 Cellular and Molecular Neurobiology 3 Prereq biochem course. Basic biochemical processes in the nervous system and their significance for normal and abnormal function. Cooperative course taught by WSU, open to UI students (VS 529).

530 General and Comparative Neuropysiology 4 Same as Neuro 530.

531 Neuroscience Laboratory Rotation 1 (0-3) Prereq graduate standing. Five-week rotation through each of three research laboratories; learning procedures and techniques. S, F grading.

534 Advanced Neurophysiology 3 Nervous system from molecular to the behavioral level; electrophysiology.

536 Pathophysiology of Blood 3 (2-3) Physiology of erythron, hemostatic system and transfusion medicine. Cooperative course taught by WSU, open to UI students (VS 535B).

542 Biochemistry 3 Prereq Chem 342. Intermediate biochemistry; introduction to metabolism and the chemical and physical properties of biomolecules. Cooperative course taught by UI (Biochem 541), open to WSU students.

555 General and Cellular Physiology 4 (3-3) Prereq cell physiology or genetics course. Physiochemical mechanisms of cellular function.

Advanced Mammalian Physiology 4 Prereq V Ph 555. Function and control of mammalian organ systems.
564 Brain-Endocrine Interaction 3 Neuroanatomy, physiology, neuropharmacology and role of neuroendocrinology; the integrative regulation of endocrine and visceral functions.

590 Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Seminars by advanced graduate students and faculty both in VCAPP and around WSU on their research areas. S, F grading.

592 Research Topics in Physiology 2 May be repeated for credit; cumulative maximum 6 hours. Concepts and controversies within a specific and highly focused domain of physiological research.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Program in Neuroscience


Description of Courses

Neuroscience

201 The Brain and Society 3 Prereq Bio S 101, 102, or 103; Chem 105. Structure and function of the nervous system from a cellular perspective.

301 Exploring the Brain 3 Prereq Bio S 103, Chem 105. Structure and function of the nervous system from a cellular level.

303 Neurochemistry 3 Prereq BC/BP 364, Neuro 301. Fundamentals of the organization and plans of circuitry of the nervous system.

304 Neuroanatomy 3 (2-3) Prereq Neuro 301. Fundamentals of the organization and plans of circuitry of the nervous system.

499 Special Problems 1-4 May be repeated for credit. S, F grading.

506 (505) Generation, Degeneration, Regeneration in the Nervous System 2 Same as Zool 506.

513 Advanced Neuroanatomy 4 Same as V An 513.

517 (517) Mammalian Neuroscience 3 (2-3) Same as V M 521P.

526 (510) Domestic and Exotic Animal Behavior 2 (1-3) Same as V M 526P. Cooperative course taught by WSU, open to UI students (V S 510).

528 Behavioral Mechanisms in Physiology 3 Same as V Ph 528.

529 Cellular and Molecular Neurobiology 3 Same as V Ph 529.

530 General and Comparative Neurophysiology 4 Neural function in vertebrates and invertebrates from the molecular to the behavioral level; emphasis on electrophysiology.

531 Neuroscience Laboratory Rotation 1 (0-3) Same as V Ph 531.

534 Advanced Neurophysiology 3 Same as V Ph 534.

536 Synaptic Organization of the Brain 3 Same as V Ph 536.

537 Physiology and Biochemistry of Neuropeptides 3 Same as V Ph 537.

538 Neuroendocrinology 3 Same as V Ph 538.

539 Research Topics in Neuroscience 2 May be repeated for credit; cumulative maximum 6 hours. Concepts and controversies within a specific and highly focused domain of neuroscience. S, F grading.

540 Neuropharmacology 3 Automatic neuro and behavioral pharmacology; basic information about drug classes, physiological and therapeutic effects.

543 Ion Channels 3 Prereq graduate standing. Examination of structure and function of ion channels from classical descriptions and understandings to modern cellular and molecular insights.

544 Neurobiology of Drug Abuse 3 Prereq 300-400-level or graduate-level general pharmacology. Impact of drugs of abuse on the central nervous system, with emphasis on neurobiological mechanisms of addiction. Cooperative course taught by WSU, open to UI students (V S 544).

561 Receptorology 2 Same as PT/561.

564 Brain-Endocrine Interaction 3 Same as V Ph 564.

574 Physiological Psychology 3 Same as Psych 574.

577 Behavioral Pharmacology 3 Same as Psych 577.

579 Behavioral Neuroscience 3 Same as Psych 579.

584 Sensory Bases of Behavior 3 Same as Psych 584.

586 Seminar in Physiological/Sensory Psychology 3 Same as Psych 586.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Veterinary Clinical Sciences


Description of Courses

Veterinary Medicine

V M


502P (402) Language and Culture for International Externships 1 Prereq two semesters Spanish. Language and culture for students intending on carrying out international externships in veterinary medicine, animal production, or related areas.

504P International Field Studies 3-6 Prereq V M 501P, 502P, 503P. Fourth year Vet Med. Preceptorship in the US or overseas, under direct supervision of veterinarian, agriculture or public health professional; related to international veterinary medicine.


552P (464) Small Animal Medicine II 5 Prereq V M 551P. Diagnosis and treatment of small animal diseases. Continuation of V M 551P.


554P (474) Surgery Laboratory I 1 (0-3) Prereq c// in V M 553P. Surgical exercises using small animals.

555P (475) Surgery Laboratory II 1 (0-3) Prereq c// in V M 553P. Surgical exercises minimizing use of living animals.


568P (358) Animal Restraint and Production I 1 (0-3) Prereq first year in professional DVM program. The restraint and production aspects of animals commonly seen by veterinarians. S, F grading.


570P (462) Large Animal Medicine II 6 Prereq V M 569P. Diagnosis and treatment of large animal infectious diseases. Continuation of V M 569P.


572P (473) Surgery II 2 Prereq V M 553P. Large animal surgical techniques.

573P (476) Surgery Laboratory III 1 Prereq third year Vet Med. Surgical exercises using large animals.

575P Lamesness in Livestock 2 (1-3) Prereq third year Vet Med. Examination, diagnosis, treatment, and prevention of lameness in cattle.


577P (488) Herd Production Medicine 3 (2-3) Health Management of livestock herds, targeting measures of productivity and profitability.

585P (409) Epidemiology 2 Minimally quantitative survey in which health is framed as a population phenomenon.

586P (509) Analytic Epidemiology 2 (1-3) Prereq statistics course. Problem-solving methods related to health events and other occurrence phenomena. (g)


590P (414) Veterinary Clinical Nutrition V 1-3 Same as A S 414.


592P (468) Small Animal Transfusion Therapy 1 (0-3) Prereq V MS 460, 463. Blood collection, storage, pretransfusion testing, component therapy and transfusion reactions.


602P (567) Small Animal Surgery 4 (0-12) Prereq fourth year Vet Med. Surgical cases in clinic, ward round, case discussions by students, seminars by faculty, designed surgical exercises.

603P (521) Clinical Medicine II 4 (0-12) Prereq V M 570P. Clinical medicine training in diseases of food animals and horses; clinic rounds and diagnostic procedures. (OSU)

610P (530) Basic Small Animal Rotation 8 (0-24) to 12 (0-36) Prereq fourth year Vet Med. Required rotation through the medical and surgical services of the Small Animal Clinic of the Veterinary Teaching Hospital.

611P (558) Small Animal Surgery--Orthopedic Service V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Orthopedic Surgery Service in the Small Animal Clinic, Veterinary Teaching Hospital.

612P (566) Small Animal Soft Tissue Surgery V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Soft Tissue Surgery Service in the Small Animal Clinic of the Veterinary Teaching Hospital.

613P (561) Small Animal Medicine Elective Referral V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Medicine Referral Practice Service in the Small Animal Clinic of the Veterinary Teaching Hospital.

614P (569) Small Animal Medicine--Locality Practice Elective V 1 (0-3) to 4 (0-12). May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Medicine Local Practice Service in the Small Animal Clinic, Veterinary Taching Hospital.

615P (584) Small Animal Medicine--Speciality Practice Elective V 1 (0-3) to 4 (0-12). May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Medicine Local Practice Service in the Small Animal Clinic, Veterinary Taching Hospital.

616P (594) Exotic Animal Medicine V 1 (0-3) to 4 (0-12). May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Medicine Exotic Practice Service in the Small Animal Clinic, Veterinary Taching Hospital.

617P (564) Clinical Neurology V 1 (0-3) to 3 (0-9) Prereq 4th year DVM student. Rotation will emphasize neuroanatomical localization, differential diagnosis, diagnostic testing, and treatments.

630P (535) Basic Large Animal Hospital Rotation V 8 (0-24) to 12 (0-36). Prereq fourth year Vet Med. Required rotation through the Medical and Surgical Services of the Large Animal Clinic, Veterinary Teaching Hospital.

631P (559) Population Medicine/Theriogenology V 1 (0-3) to 4 (0-12) Prereq fourth year Vet Med. Required rotation for Agricultural Animal Track students through population medicine laboratory and Theriogenology Services of the Veterinary Teaching Hospital.

632P (577) Theriogenology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical theriogenology subjects in large and small animals.

633P (579) Agricultural Animal Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical subjects in food animal diseases and herd health/preventive medicine.

634P (576) Epidemiology of Diseases 2 (0-6) May be repeated for credit; cumulative maximum 8 hours. Prereq V M 565P. Principles of disease outbreak investigations, host-agent-environment interactions, and intervention strategies in animal populations. Field trips required.

635P (578) Preventive Medicine V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Preventive medicine and management practices related to control of animal diseases (Caldwell).

636P (571) Equine Medicine Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Equine Medicine Service in the Large Animal Clinic, Veterinary Teaching Hospital.

637P (572) Equine Surgery Elective V 1 (0-3) to 4 (0-12). Prereq fourth year Vet Med, enrollment in equine career track. Clinical experience with the Equine Surgery Service of the Large Animal Clinic, Veterinary Teaching Hospital.

638P (573) Equine Track V 1 (0-3) to 4 (0-12). Prereq fourth year Vet Med. Required rotation through the clinical anesthesia service of the Small Animal Clinic and Large Animal Clinic of the Veterinary Teaching Hospital.

639P (568) Pharmacy and Therapeutics 1 (0-3) Prereq fourth year Vet Med. One-week overview of Washington and federal drug laws, inventory control, formulary management, therapeutics for a successful practice.

652P (580) Technical and Diagnostic Radiology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Prereq fourth-year Vet Med. Laboratory exercises and instructional sessions to increase proficiency in clinical diagnostic radiology.

653P (583) Imaging Services Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical and laboratory experience with the Radiology Section in the Small Animal Clinic, Veterinary Teaching Hospital.

657P (582) Clinical Pathology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Prereq fourth year Vet Med. Clinical laboratory diagnosis and interpretation.

675P (550) Emergency and Critical Care V 1 (0-3) to 4 (0-12) Prereq fourth year Vet Med. Required rotation for all students through the Emergency and Critical Care Services, Veterinary Teaching Hospital.

676P (555) Veterinary Research Practicum V 1 (0-3) to 8 (0-24) May be repeated for credit; cumulative maximum 14 hours. Prereq fourth year Vet Med, enrollment in research track program or approved for research career track. Individualized research project. S, F grading.


691P (591) Guided Preceptorship 1 (0-3) or 2 (0-6) Prereq fourth year Vet Med. Guided preceptorship in an accepted extramural clinical or laboratory setting.
692P (592) Government, Corporate, and Zoological Practice Elective V 1 (0-3) to 6 (0-18). May be repeated for credit; cumulative maximum 10 hours. Prereq fourth year Vet Med. Elective experience in government, corporate, and zoological veterinary medicine arranged through nationwide matching program. S, F grading.

693P (595) Laboratory Animal Medicine V 1 (0-3) to 4 (0-12). May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical and laboratory experience with major research facilities such as the Department of Comparative Medicine, University of Washington. S, F grading.

699P (599) Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. Prereq enrollment in DVM Professional Program. S, F grading.

Veterinary Clinical Medicine and Surgery

V MS
261 Accidents and Diseases 3 For majors in agriculture. Common diseases and injuries of farm animals.

367 Prevention and Management of Equine Health Problems 3 Basic health care of horses with respect to good health care and recognizing and responding to disease and injury situations.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

582 Seminar in Clinical Medicine 1 May be repeated for credit.

583 Advanced Anesthesiology 2 Prereq DVM degree. Advanced veterinary anesthesiology as applied to clinical practice.

584 Comparative Theriogenology 1 Prereq DVM degree. Lectures from WSU College of Veterinary Medicine and Department of Animal Sciences and from UI Department of Animal and Veterinary Science.

585 Selected Topics in Advanced Clinical Neurology 1 or 2 May be repeated for credit; cumulative maximum 10 hours. Prereq DVM degree. Advanced veterinary neurology as applied to clinical practice.

587 Hospital Rotation 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Supervised practical experience in all service areas of the veterinary hospital. Cooperative course taught by WSU, open to UI students (VS587).

589 Advanced Clinical Veterinary Medicine V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Special topics.

591 Advanced Clinical Diagnosis V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Advanced course in systems clinical and laboratory examination.

592 Seminar 1 May be repeated for credit. Cooperative course taught by WSU, open to UI students (VS592). S, F grading.

594 Advanced Small Animal Surgery 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Clinical experimental techniques.

595 Advanced Laboratory Diagnosis V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Advanced clinical laboratory diagnosis and interpretation.

596 Advanced Radiology 2 (1-3) Prereq DVM degree. Advanced study in the field of veterinary radiology and radiation treatment.

598 Surgery Residents Seminar 1 May be repeated for credit. Prereq DVM degree. Surgery residents’ and interns’ presentations of case reports, literature reviews and research. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Department of Veterinary Microbiology and Pathology


Description of Courses

Veterinary Medicine

V M
500P (356) Professional Orientation and Ethics 1 Orientation to and ethics of the veterinary medical profession for first-year veterinary students. S, F grading.

534P (430) Veterinary Immunology 3 (2-3) Prereq major in Vet Med or graduate student in Vet S. Immunology for the professional veterinary student. Cooperative course taught by WSU, open to UI students (VS430).

535P (431) Veterinary Virology 3 Prereq major in Vet Med or graduate student in Vet S. Virology for the professional veterinary student. Cooperative course taught by WSU, open to UI students (VS431). (g)

536P (432) Veterinary Bacteriology 4 (3-3) Prereq second year Vet Med. Bacteria that produce disease in animals. Cooperative course taught by WSU, open to UI students (VS432). (g)

537P (451) Veterinary Parasitology 4 (3-3) Prereq second year Vet Med. Arthropods, protozoa, and helminths of veterinary importance; their host-parasite relationship and control. Cooperative course taught by WSU, open to UI students (VS451). (g)

542P Diseases of Wildlife 2 Prereq fourth year Vet Med. Management principles, epidemiology, pathology, treatment, and control of diseases in wild birds, fish, and mammals. Cooperative course taught by WSU, open to UI students (VS542B).

543P (433) Veterinary Medicine and Human Health 2 Prereq third year Vet Med. Preparation for veterinary students in public health and food hygiene.

545P (445) [M] Pathology I 3 (2-3) Prereq V M 520P. Structural and functional alterations in disease; elementary oncology. Cooperative course taught by WSU, open to UI students (VS445). (g)

546P (446) [M] Pathology II 6 (5-3) Prereq V M 545P. Principles of system and organ response to injury, and the effects of injury/disease on the animal host. Cooperative course taught by WSU, open to UI students (VS446B). (g)

559P (454) Special Animal Medicine V 1-3 Prereq third year Vet Med. Handling, restraint, care, normative features, procedures and diseases of unusual animals as pets or those used in food production or research. Cooperative course taught by WSU, open to UI students (VS454).

656P (581) Diagnostics V 1 (0-3) to 4 (0-12) Prereq fourth year Vet Med. Advanced study in diagnostic pathology, toxicology, and microbiology.

694P (541) Avian Medicine 4 (0-12) Prereq fourth year Vet Med. Laboratory diagnosis and pathology of avian (pet bird and commercial fowl) diseases.

Veterinary Microbiology

V Mic
435 Disease Concepts for Wildlife Biologists 3 Biologic aspects of infectious diseases and environmental contaminants in wild mammalian and avian populations. Cooperative course taught by WSU, open to UI students (VS435/WLF444).

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

531 Mechanisms of Immune Regulation in Laboratory and Domestic Animals 3 Prereq Micro 412. Analysis of immune regulation in vertebrates; ontogeny, phylogeny, immune regulation. Cooperative course taught by WSU, open to UI students (VS531B).

532 Virology 3 Prereq BC/BP 364; Micro 414 or V M 535P. Advanced topics in basic virology. Cooperative course taught by WSU, open to UI students (VS532B).

535 Advanced Readings in Veterinary Microbiology 1 (0-3) May be repeated for credit. Prereq fourth year in Vet Med or graduate student in Vet S. Supervised reading program which peruses publications of intermediate technical difficulty and advanced textbooks. Cooperative course taught by WSU, open to UI students (VS535A).

536 Diagnostic Microbiologic Conference 1 (0-3) May be repeated for credit. Prereq graduate student in Vet S. Identification of animal pathogens in clinical material. Cooperative course taught by WSU, open to UI students (VS536).

537 Diagnosis of Viral and Rickettsial Diseases of Domestic Animals 3 (1-6) Prereq V M 534P, 535P, 546P. Clinical, pathological, and laboratory diagnosis of viral and rickettsial diseases of domestic animals. Cooperative course taught by WSU, open to UI students (VS537A).
541 Advanced Diagnostic Microbiology 1 (0-3) May be repeated for credit; cumulative maximum 8 hours. Prereq V M 534P, 535P, 536P. Microbiology laboratory for performing and interpreting virologic, serologic, and related tests for the diagnosis of animal diseases.

572 Advanced Topics in Microbiology, Parasitology, or Immunology V 1-3 May be repeated for credit; cumulative maximum 4 hours. Advanced topics in microbiology, parasitology, or immunology presented in short-course, or workshop format.

591 Seminar in Diagnostic Microbiology 1 May be repeated for credit; cumulative maximum 8 hours. Seminar in diagnostic veterinary microbiology.

592 Advances in Immunobiology 1 May be repeated for credit. Cooperative course taught by WSU, open to UI students (VS 592).

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Veterinary Pathology

V Pa

410 Survey of Pathobiology 3 Overview of pathobiology experimental oncology, epidemiology, and aging that emphasizes detecting, understanding and preventing disease.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Case-based Learning in Veterinary Pathology 1 (0-3) to 3 (0-9) Prereq second year Vet Med or DVM degree. Principles of pathophysiology, infectious disease, laboratory diagnosis, zoonoses, and food safety learned through the development of multistep teaching cases.

525 Introductory Readings in Veterinary Pathology 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Supervised introductory readings of publications, books, and research proposals.

542 Advanced Diagnostic Pathology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq V M 546P. Necropsy laboratory for techniques and skills in performing and interpreting necropsy material. Cooperative course taught by WSU, open to UI students (VS 542A).

543 Laboratory Animal Pathology 3 May be repeated for credit; cumulative maximum 6 hours. Prereq V M 559P. Pathology of principal diseases of laboratory animals. Cooperative course taught by WSU, open to UI students (VS 543).

544 Immunopathology 3 Prereq V M 545P, V Mic 531. The role of immune processes in the pathogenesis of disease. Cooperative course taught by WSU, open to UI students (VS 544).

545 Mechanisms of Disease 5 Prereq Micro 412 or V M 534P, 545P. Biochemical and immunological mechanisms involved in disease processes from the comparative standpoint. Cooperative course taught by WSU, open to UI students (VS 545A).

547 Advanced Veterinary Parasitology 3 Prereq graduate or advanced undergraduate. Mechanisms involved in host-parasite relationships important to control of parasitic infections.

548 Introduction to Research 1 Introduction to research. Cooperative course taught by WSU, open to UI students (VS 548).

555 Research in Progress Seminar 1 May be repeated for credit; cumulative maximum 8 hours. Presentation of on-going student research project results.

569 Research Proposal 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Written preparation and oral presentation of a research proposal.

571 Advanced Topics in Pathology V 1-3 May be repeated for credit; cumulative maximum 4 hours. Advanced topics in pathology presented in short-course, or workshop format.

592 Anatomic Pathology Seminar 1 May be repeated for credit. Histopathologic description and diagnosis. Cooperative course taught by WSU, open to UI students (VS 592).

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Program in Women’s Studies

Director, D. Haynes; Associate Professor, N. Sturgeon.

The Program in Women’s Studies offers an interdisciplinary study of women, with an emphasis on their lives, roles, and contributions. The program is designed to achieve four major objectives:

1) to provide students with a systematic knowledge of the multidisciplinary scholarly study about and by women;

2) to enhance the qualifications of students preparing for careers in business, education, government, communications, the sciences and social sciences, among others;

3) to facilitate the understanding of continuing social change in gender-related activities; and

4) to further university and societal goals of gender equality.

The program offers a minor in Women’s Studies. The minor requires a minimum of 16 hours of credit, including a minimum of two lower-division courses.

Description of Courses

Women’s Studies

W St

150 Marital and Sexual Life Styles 3 Same as Soc 150.

200 [S] Introduction to Women’s Studies 3 Multidisciplinary perspectives on women and on their past, present, and potential contributions.


216 [H] Main Currents in American Culture 3 Same as Hist/Engl 216.

230 Human Sexuality 3 Same as Psych 230.

235 [I] African American History 3 Same as CAC 235/Hist 205.

250 [S] The American Health Care System 3 Same as PharP 250.

290 Women and Work: Choices and Changes 3 Interdisciplinary approach to the complex relationship between women and work in contemporary America; including review of trends, issues, and policies.


300 [S][M] Intersections of Race, Class and Gender 3 Prereq CAC 101 or W St 200. Intersections between race, class and gender through case studies; experiences in interdisciplinary methods.

301 Topics in Women’s Studies V 1-3 May be repeated for credit; cumulative maximum 9 hours.

302 Contemporary Masculinity and Men’s Issues 3 Analysis of the development of masculinity in its biological and cultural forms.

305 [S] Gender and Politics 3 Same as Pol S 305.

306 [H] [M] Introduction to Literary Criticism 3 Same as Engl 308.

307 Biology of Women 3 Same as Zool 307.

308 Women Artists I, Middle Ages-1900 3 Same as F A 308.

309 [H] Women Writers 3 Same as Engl 309.

310 Women Artists II, Twentieth Century 3 Same as F A 310.

311 Topics in Women’s Studies V 1-3 May be repeated for credit; cumulative maximum 9 hours. Focused study of subjects/issues relating to women.

315 Women in Management and Leadership 3 Analysis of women’s historical and contemporary role in American management.


320 Resource Management and Problem Solving 3 Same as H D 320.

321 Topics in Women’s Studies V 1-3 May be repeated for credit; cumulative maximum 9 hours. Focused study of subjects/issues relating to women.

324 [S] Psychology of Women 3 Same as Psych 324.

330 Women and the Law 3 Historical base of women’s legal rights and obligations; analysis of legislative and judicial responses to sexual discrimination.

332 Global Feminism 3 Prereq W St 200. An interdisciplinary approach to examining women’s roles and experiences throughout the world and different approaches to feminism/feminisms.

335 Women in Latin American History 3 Same as Hist 335.

350 [S] European Women’s History, 1400-1800 3 Same as Hist 350.

351 [S] The Family 3 Same as Soc 351.

363 [H] Women of Note 3 Same as Mus 363.

375 [M] Women and Ethics 3 Prereq Phil 101 or W St 200. Study of gender and feminisms and their effect on contemporary ethical theories and issues.

380 [S] History of Medicine 3 Same as Hist 380.

382 Modern American Literature 3 Same as Engl 382.

384 [S] Sociology of Gender 3 Same as Soc 384.

391 Seminar in Women’s Studies 3 Prereq W St 200. Development of feminist politics related to theories of human nature; feminist theory and practice.
398 [M] History of Women in the American West 3 Same as Hist 398.
402 Cross-Cultural Gender and Kinship 3 Same as Anth 402.
403 [S] Violence Toward Women 3 Same as Crm J 403.
409 [H] Women Writers in the American West 3 Same as Engl 409.
410 Internship 1-12 Prereq W St 200; 300 or 481 with B or better, by interview only. May be repeated for credit; cumulative maximum 12 hours. Supervised experience in approved campus or community agencies or projects focusing on women’s issues. S, F grading.
421 The Frontier and the American West 3 Same as Hist 421.
460 [K] Gender, Race, and Nature in American Culture 3 Prereq W St 200 or 300; completion of one Tier I and three Tier II courses in an appropriate area of coherence. Exploration of American culture through examination of cultural representations of nature in mainstream and environmental politics.
475 Women and Sport 3 Same as Kin 475.
481 [M] Theoretical Issues in Women’s Studies 3 Prereq W St 200 or 300. Introduction to the field of feminist theory, including classic interdisciplinary methods, and applications of this scholarship to contemporary women’s issues.
484 [K] Lesbian and Gay Studies 3 Prereq Soc 101, 102, or W St 200. Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence. Interdisciplinary exploration of issues related to gender and sexuality, explored transhistorically and cross-culturally, including race, class and age differences.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Department of Zoology


Zoology is the science that deals with animals. It embraces not only the traditional study of animal diversity and natural history, but also modern subdisciplines extending from subcellular and cellular to ecological and evolutionary scales. An undergraduate preparation in zoology provides a student with the basis for pursuing outdoor and indoor vocational opportunities in ecology, laboratory research and technology, human health, animal health and welfare, and a variety of other biological specializations.

The department awards the Bachelor of Science in Zoology. The flexible curriculum leading to this degree meets the needs of students with various interests and goals. Built around an integrated core of basic science courses are several optional course programs designed to prepare students either for attending postgraduate or professional school or for entering a vocational field. The general zoology option provides a broad, solid foundation in zoology. It is aimed especially at students desiring a well-rounded background for further professional studies, such as in graduate or veterinary school. Students aspiring to enter medical or dental school should find the premedical/predental option to be particularly appropriate. Another option in the department is the course program in ecology. This program provides the graduate with a broadly based ecological understanding applicable to such fields as environmental, wildlife and conservation biology. A fourth optional program in animal care prepares students for careers involving animal care and maintenance in research institutions, zoos, aquaria, and clinics. In addition to the above principal options, other course programs can readily be arranged through advisor consultation to meet a student’s particular interests or academic goals.

The department offers an undergraduate minor in zoology, as well as administering a minor in ecology. At the graduate level, the department awards both master’s and doctoral degrees in zoology. Faculty interests and research programs are diverse, ranging from cellular and developmental biology, through various aspects of organismal biology, to ecology and evolutionary biology. The last two are particularly prominent areas of the department’s graduate program. A list of specific faculty interests can be obtained by writing to the department.

There are modern facilities for graduate study in cell and developmental biology, genetics, physiology, functional morphology, systematics, and behavioral, environmental and evolutionary biology. The university’s rural location is conducive for field studies. Special facilities include the vertebrate collections of the Charles R. Conner Museum, the George E. Hudson Biological Preserve of 760 acres, the Electron Microscopy Center, the Eastlick Variarium for maintaining lab animals, and local terminals connected to the university’s central computing facility and to the Ethernet system.

Cooperation with numerous other campus units extends research opportunities. Cooperative arrangements with faculty in such departments as biochemistry and biophysics, botany, entomology, genetics and cell biology, animal sciences, natural resource sciences and the veterinary college are readily achieved.

Degree Program Requirements

Candidates for the Bachelor of Science in Zoology must fulfill the university and the College of Sciences requirements for graduation as described elsewhere in this catalog. The math and science components of those requirements are fulfilled in the departmental requirements below. Other university requirements include 120 total credit hours of which 40 must be 300-400-level credits, the writing portfolio, and two writing in the major courses (identified by [M] in the course listings). College requirements include one year of foreign language if two years were not taken in high school.

The several optional curricular programs offered in the department consist of a common set of core requirements plus courses particularly suited to the individual programs. The core course work constitutes the minimal requirements for the bachelor’s degree in zoology. It forms the basis also of individualized course programs that are available through consultation with a zoology advisor. No required or other program course may be taken on a pass, fail basis.

**ZOOLOGY DEGREE PROGRAM**

The following course work comprises the departmental core requirements for the B. S. Degree: Bio S 103; 104, Bio S 372 [M] or Zool 330; chemistry through organic, GenCB 301, General Physics (one year), math through calculus (Math 140, 171, or 202), Zool 393 [M], 405; Zool 353, or 352, 452 [M], or 450, 452 [M]; two from Zool 320, 322, 324; an additional 12 hours of degree program courses, other Zool courses, or advisor-approved supportive course work. In the following semester listing, these additional courses are designated as Degree Program Courses.

**Freshman Year**

**First Semester**

Hours

Bio S 103 [B] (GER) 4
Chem 101 [P] or 105 [P] (GER) 4
Engl 101 [W] (GER) 3
Math 140 [N]; 171 [N], or 202 [N] (GER) 3 or 4

**Second Semester**

Hours

Bio S 104 [B] (GER) 4
Chem 102 [P] or 106 [P] (GER) 4
Communication Proficiency [C, W] (GER) 3
GenEd 110 [A] (GER) 3

**Sophomore Year**

**First Semester**

Hours

Chem 240 (or 340 & 341) 4
Degree Program Course 4
GenEd 111 [A] (GER) 3
Phys 101 [P] or 201 [P] (GER) 4

**Second Semester**

Hours

Degree Program Course 5 or 4
Intercultural [I, G, K] (GER) 3
GenCB 30 4
Phys 102 [P] or 202 [P] (GER) 4

**Junior Year**

**First Semester**

Hours

Arts & Humanities [H, G] (GER) 3
Degree Program Course 4 or
Social Sciences [S, K] (GER) 3
Zool 320, 322, or 324 4
Zool 393 [M] 2
Complete Writing Portfolio

**Second Semester**

Hours

Arts & Humanities [H, G] or
Social Sciences [S, K] (GER) 3-6
Bio S 372 [M] or Zool 330 3 or 4
Degree Program Course 4 or
Zool 320, 322, or 324 4

**Senior Year**

**First Semester**

Hours

Arts & Humanities [H, G] or
Social Sciences [S, K] (GER) 6
Degree Program Courses or Electives 6-8
Zool 405 3

**Second Semester**

Hours

Degree Program Courses or Electives 8-10
Tier III Capstone (GER) 3
Zool 353 4

1 Math 107 may be needed before enrolling in calculus, depending on math placement score.
2 Premedical and predental students should select Chem 105, 106, 340 & 341, and subsequently take
Transfer Students
A student entering the department from a community college or as a junior transfer from another university should have completed the equivalent of the following:

Bio S 103, 104; math through calculus; chemistry through organic (Chem 240); Phys 101, 102; a course in genetics; part of the non-science university requirements; and a year of foreign language if two years were not previously completed in high school.

Description of Courses

Zoology

Zool

135 [B] Animal Natural History 3 Identification, life history, habitat relations, ecology, behavior, and conservation of animals commonly found in the Pacific Northwest.


224 Adaptive Strategies of Animals 3 Prereq biology course. Adaptive functions of animal structural designs, systemic processes and sensory mechanisms; means of accommodating the physical environment; feeding and antipredator tactics.

225 General Zoology Laboratory 1 (0-3) Invertebrate and vertebrate animals; structural features, adaptation, diversity and systematic relationships.

251 Introductory Human Physiology 4 (3-3) Rec one semester Chem. Basic physiological processes in humans from the cellular to the organismal level.

307 Biology of Women 3 Prereq one semester Bio S. General physiology of body func-

tions; health care concerns unique to women; biological and evolutionary perspectives on femaleness.


315 Gross and Microanatomy 4 (3-3) Prereq one semester Bio S. Gross and microscopic anatomy of the human body.

316 Human Embryology 3 Rec Zool 315. Basic aspects of human development with emphasis on congenital defects.

320 Principles of Animal Development 4 (3-3) Prereq GenCB 301. Experimental analyses of development and descriptive and comparative examination of embryology; emphasis on the chordates.


324 Comparative Vertebrate Anatomy 4 (2-6) Prereq Bio S 104. Evolution of vertebrates and their organ systems; correlation of structural modification with function.


331 Current Debates on the Environment 1 Prereq Bio S course. Discussion of contentious and contemporary environmental issues from biological, social, economic and political perspectives.

352 Cell Physiology 3 Prereq Bio S 104, organic chem; Rec c// in Zool 452. Function and control at the cell-tissue level.

353 Mammalian Physiology 4 (3-3) Prereq Bio S 104; Rec c// in organic chemistry. Function and control at the organ-organismic level with emphasis on mammals, including humans.

398 [M] Seminar 1.2 Literature investigation, oral presentation and written reports of selected topics in zoology.

399 Medicine as a Career 1 Prereq junior standing, by interview only. Current issues in medicine; ethical, financial, and personal aspects of medical practice.

395 Seminar II 1 May be repeated for credit; cumulative maximum 4 hours. Training in abstracting and reporting recent and classical research in zoology.

403 Principles of Organic Evolution 3 Prereq GenCB 301. The evolutionary processes that influence adaptation, population differentiation, and speciation in organisms. Credit not granted for both Zool 405 and 505.

410 Marine Ecology 3 Prereq 6 hours of physical and/or biological science. Marine environments: their ecology, role in human development, and hazards to their well being.

411 Limnology 4 (2-2) Prereq general ecology. Physical, chemical, and biological features of lakes and streams. Field trips required. Cooperative course taught by UI (Fish 415), open to WSU students.


414 Fish Ecology 2 Principles regulating density of fishes; interrelationships of fishes; responses of fishes to environmental stress. Cooperative course taught by UI (Fish 413), open to WSU students.

416 Principles of Fisheries Management 4 (3-3) Same as NATRS 416.


421 Vertebrate Histology and Organology 4 (2-6) Prereq Bio S 103 or Zool 251. Microscopic anatomy of tissues and major mammalian organs. Cooperative course taught by UI (Zool 427), open to WSU students.


426 Population Analysis 1 Same as NATRS 426. Credit not granted for both Zool 426 and 526.


429 Population Theory 1 Same as NATRS 429. Credit not granted for both Zool 429 and 529.


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A

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<thead>
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<td>DVM, Washington State University</td>
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<td>Mark J. Smaha</td>
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<td>Christopher L. Small</td>
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<td>Michael J. Smerdon</td>
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<tr>
<td>Professor</td>
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<td>Department of Biochemistry and Biophysics</td>
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<td>Christopher Smith</td>
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<td>County Extension Chair E-3</td>
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<td>D. S. Smith</td>
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<td>Gary W. Smith</td>
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<td>Agricultural Economics</td>
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<tr>
<td>Jean Smith</td>
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<td>Lloyd V. Smith</td>
<td>PhD, University of Utah</td>
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<td>Assistant Professor</td>
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<td>School of Mechanical and Materials Engineering</td>
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<td>Robert V. Smith</td>
<td>PhD, University of Michigan</td>
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<td>Vice Provost and Dean</td>
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<tr>
<td>Samuel H. Smith</td>
<td>PhD, University of California, Berkeley</td>
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<td>President</td>
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<tr>
<td>Shawn M. Smith</td>
<td>PhD, University of California, San Diego</td>
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<tr>
<td>Timothy J. Smith</td>
<td>MS, Washington State University</td>
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<td>Tristram H. Smith</td>
<td>PhD, University of California, Los Angeles</td>
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<td>Assistant Professor</td>
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<td>Christine O. Sedorff</td>
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<td>Director of Resident Instruction</td>
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<td>Elizabeth Soliday</td>
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<td>Douglas E. Soltis</td>
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<td>Pamela S. Soltis</td>
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<td>David A. Sonnenfeld</td>
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<td>Erik J. Sorensen</td>
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<td>Harold C. Sorensen</td>
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<td>Eric R. Spangenberg</td>
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<td>Wayne M. Sparks</td>
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<td>Sara E. Spayd</td>
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<td>Kemet D. Spence</td>
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<td>Robert C. Speth</td>
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<td>Alice M. Spitzer</td>
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<td>Associate Scientist Inst/Res</td>
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<td>Clarke D. St. Dennis</td>
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<td>Jennifer E. Steffen</td>
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<td>Steven D. Stehr</td>
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<td>Donald E. Stem, Jr.</td>
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Robert G. Stevens  
PhD, Colorado State University  
Cooperative Extension Specialist E-4 — WSU-Prosser  
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ADMISSION REQUIREMENTS

1. GENERAL REQUIREMENTS
(a) To be eligible for admission to Washington State University, an applicant must be a high school graduate or its equivalent.
(b) The total number of new students admitted for any one semester will be based on the number of students for whom facilities can be made available.
(c) Exceptions to the admission requirements may be made only by the Admissions Subcommittee of the Academic Affairs Committee.
(d) Anyone seeking admittance to the Graduate School must follow procedures in the Graduate School Policies and Procedures Manual available in the Graduate School.

2. FRESHMAN REQUIREMENTS. Freshman applicants are considered for admission based on required high school courses completed, grade point average and the results of the Washington Pre-College Test (WPCT), if taken prior to June 1, 1989, Scholastic Aptitude Test (SAT), or the American College Test (ACT). On the basis of these three criteria, the most qualified applicants are offered admission.

Applicants are required to submit a high school transcript showing completion of the following courses:

- **English**: Four years (including at least one year each of composition and literature).
- **Mathematics**: Three years (normally one year of geometry and two years of algebra including an introductory component of trigonometry).
- **Science**: Two years (including at least one year of laborato-
  ry).
- **Social Science**: Three years (including at least one year of history).
- **Foreign Language**: Two years of a single foreign language (or approved sign language).

Beginning with the fall term, 1992, freshmen applicants must complete a year of fine, visual and performing arts or other academic elective. Applicants from unaccredited high schools may be required to pass validating examinations.

3. REGULAR ADMISSION OF FRESHMEN 21 YEARS OF AGE OR OLDER. A student 21 years of age or older who is seeking initial entry at the freshman level beginning with the fall term 1989, may be offered regular admission if, as a minimum, the student presents a score of at least 700 on the SAT, 15 on the ACT, or 83 on the Washington Pre-College test taken prior to June 1, 1989.

Washington State University Policy on Admission Exceptions. Washington State University will use its alternate admission standard to support its land grant tradition and its values of excellence, diversity, and individual importance. To that end, WSU has identified several special populations of students for whom alternate admissions standards may be applied in order to maintain a vibrant, diverse student body. These categories of students include: ethnic minorities, women, non-traditional/adults, students of disability, students with special talents and interests, and students who show evidence of extraordinary motivation or circumstances.

ADVANCED STANDING

4. TRANSFER REQUIREMENTS
(a) Applicants with at least 27 semester hours of transferable credit from a regionally accredited post-secondary institution must present a grade point average of at least 2.00.
(b) Applicants with less than 27 semester hours of transferable credit will be considered for admission if they meet the freshman requirements and the 2.00 grade point average transfer requirement.

5. DOCUMENTS REQUIRED. An applicant for admission to advanced standing, in addition to meeting the requirements for entrance to the freshman class, shall present: (a) an application; (b) a statement of honorable dismissal; (c) a complete official transcript from each higher institution attended; and (d) a record of high school work if it is not included in the college transcript.

All advanced standing shall be tentative pending the satisfactory completion of at least one semester’s work.

6. TRANSFER CREDIT. (See Rule 114, Requirements for Undergraduate Degree.)
(a) Colleges and universities must be regionally accredited for transfer credit to be awarded.
(b) Ninety semester hours shall be the maximum allowed by transfer toward a four-year degree, and 120 semester hours shall be the maximum amount allowed by transfer toward a five-year degree.
(c) The maximum transfer credit allowed from regionally accredited two-year or community colleges shall be 60 semester hours toward a baccalaureate degree irrespective of when those hours were earned provided that the courses are essentially equivalent to those at WSU.
(d) Students who initiated postsecondary education prior to September 1, 1996 may be allowed additional credit from a regionally accredited two-year or community college under the following conditions:
   (1) The student has been offered admission by WSU with at least 90 quarter (60 semester) hours of transferable lower-division credit already completed.
   (2) The student’s WSU academic advisor has indicated that additional lower-division course work is required to meet specific general education, college or departmental requirements for a WSU degree.
   (3) Courses to meet these general education, college or departmental requirements are not offered at the WSU campus to which the student has been admitted or at the student’s delivery site.
   (4) No more than 20 total quarter (13 total semester) hours of additional lower-division credit will be allowed toward a baccalaureate degree earned by a student enrolled at a WSU campus or delivery site which does not offer the required course(s).
   (5) A student may not petition for additional lower-division credit earned prior to the offer of admission to WSU.
   (6) The petition must be approved and on file with the Registrar’s Office at WSU Pullman before completing the additional course work; if not approved in advance, additional course work will not be allowed.
   (7) The additional credit will not be posted on the WSU transcript until an official transcript from the regionally accredited two-year or community college(s) has been received by the Admissions Office at WSU Pullman.

(e) Two full years of credit and completion of lower-division General Education Requirements will be granted to students who have been awarded the A.A. or A.S. degree from a Washington community college or the Associate of Arts—Oregon transfer degree from an Oregon community college which has adopted a general education program comparable to WSU General Education requirements.

9. GRADE POINTS REQUIRED. Students entering with advanced standing must earn twice as many grade points for graduation as the number of hours which they have enrolled in this or any other institution.

14. CREDIT FROM NON-ACCREDITED INSTITUTIONS. Special examinations for advanced standing credit for work done in non-accredited institutions will be allowed only by permission of the Admissions Subcommittee.

15. CREDIT BY EXAMINATIONS. Subject to standards established in consultation with academic departments concerned, credit may be granted to entering or enrolled undergraduate students via various means including external examinations, institutional examinations, and approved military service schools. Credits by examination shall yield no grade points. Such
Credits may partially fulfill General Education Requirements for graduation. External examinations will include but not be limited to:

Advanced Placement (AP) Program examinations of the College Entrance Examinations Board; general and subject college Level Examination Program (CLEP); and the Washington Pre-College Test Program (WPCT).

(a) Advanced Placement Program. Credit for the AP examinations passed with a score of three or higher on a five-point scale will be granted in an amount equal to the introductory course or courses in the particular discipline tested.

(b) College Level Examination Program (CLEP)
(1) General and Subject Examinations—Credit for CLEP will be granted if the examination is passed with scores established by the department concerned in consultation with the Director of Admission. Credit will be granted for scores at the 50th percentile or above. Credit will be granted for the comparable Washington State University course, or elective credit may be granted. Not more than 6 semester hours of credit will be granted for each examination.
(2) Students with junior standing (60 semester credits or more) are not eligible for credit through CLEP examinations. Contact the Office of Admissions for specifics.

(c) Challenge Examinations. Matriculated students currently registered at Washington State University, with permission of their advisor or department chairperson and of the chairperson of the department offering the course, may take challenge examinations for university credit in courses in which they are not registered. Students may not take challenge examinations in courses which they have audited, or in which they have received a final grade. Upper-division students may not receive credit by challenge examination in lower-division courses in their major field. Undergraduate students may not receive credit by challenge examination in any course prerequisite to a course in which they are enrolled or have received a final grade. The maximum credit for challenge examinations is 30 semester hours unless permission is obtained from the student's academic dean. The fee for all challenge petitions is $147 per course.

(d) Military Credit. Credit will be granted for satisfactory completion of:
(1) Military service schools in the amount recommended by the American Council of Education in the publication, Guide to the Evaluation of Educational Experiences in the Armed Forces.
(2) United States Armed Forces Institute correspondence courses (under the rules applicable to other correspondence work).
(3) Dantes Credit: Elective credit for DANTES Subject Standardized Tests (DSSTs) will be granted for college-level academic subjects (non-vocational/technical courses) using the minimum score and credit amount recommendations of the American Council on Education.

(e) Peace Corps and Volunteers in Service to America (VISTA) Credit for training in the Peace Corps or VISTA will be granted for having completed specific courses, under regular catalog course numbers, as shown on a regular transcript from an accredited college or university.

(f) Other Test Programs. Credit for other testing programs such as the Washington Pre-College Test Program and WSU departmental placement examinations will be granted in accordance with policies established by the university and academic departments.

AUDITING CLASSES

20. PERMISSION TO AUDIT. An auditor is a class visitor permitted on a space-available basis to observe class discussions but not take examinations or consume the instructor’s time. Attendance in class beyond three visitations requires official approval on the Request for Permit to Audit card. Students may seek permission, after the start of classes, to audit a lecture course by securing the approval of the class instructor. Those wishing to audit or change from credit to audit must pay the appropriate fee and submit the signed audit card to the Office of the Registrar before the end of the fourth week of instruction in the semester. An enrollment change from audit to credit is limited to the first two weeks of instruction. A maximum of two audits are allowed for any semester or term. A registration fee per audit hour is charged for any semester or term for other than regularly enrolled full-fee-paying students. Senior citizens are exempt from this fee under the provisions of RCW 28B.15.540, provided the prescribed eligibility requirements are met. Persons who have received authorization for the faculty/staff fee waiver are exempt from the audit fee up to 6 hours (including audits) in any one semester or 4 hours (including audits) in the summer session.

Said limitation includes any combination of credit and audit hours. Audit fee is non-refundable.

21. NO CREDIT FOR AUDITING. No university credit will be allowed for auditing courses, nor may students apply for or take special examinations for university credit in courses which they have audited. Students may not take challenge examinations (see Rule 15c) in courses they have audited. (Audit enrollments will be recorded on the student’s permanent record by listing the departmental prefix, course number and the statement, “OFFICIAL AUDIT NO CREDIT”)

CLASS STANDING OF STUDENTS

25. CLASS STANDING. Freshman Standing —below 30 semester hours; Sophomore Standing—30 to 59 1/2 hours; Junior Standing—60 to 89 1/2 hours; Senior Standing—90 and above hours.

CREDIT

27. CREDIT DEFINITION. Academic credit is a measure of the total time commitment required of a typical student in a particular course of study. For the WSU semester system one semester credit is assigned for a minimum of 45 hours of total time commitment. This time commitment includes: 1) time spent in scheduled course activities organized by an instructor (lectures, discussions, workbooks, videotapes, laboratories, studios, fieldwork, etc.); 2) time spent in group activities related to course requirements; and 3) time spent in reading, studying, problem solving, writing, and other preparations for the course. The minimum time commitment, based on a fifteen-week semester and a traditional campus setting, should follow these guidelines: 1) lecture—one hour of lecture per week for each credit hour; 2) laboratory—three hours of laboratory per week for each credit hour; 3) independent study—three hours of independent work per week for each credit hour; 4) studio—two hours of studio work per week for each credit hour; 5) ensemble—four hours of ensemble work per week for each credit hour. For courses to be given during a different time frame than the fifteen-week semester or in a different format than the traditional, the course proposal must clearly define how the total time commitment is determined to justify the credit hours requested for the course.

28. HIGH SCHOOL COOPERATIVE PROGRAM. High school students may enroll as part-time students at Washington State University provided they are admitted to the university and pay the appropriate fees. Such enrollments may be for high school or university credit. If for high school credit, a special fee applies.

29. WORK FROM HIGH SCHOOLS, BUSINESS COLLEGES, AND COLLEGES AND UNIVERSITIES WITHOUT REGIONAL ACCREDITATION. No university credit shall be given for work from high schools, business colleges, or colleges and universities without regional accreditation.

31. CREDIT TO HIGH SCHOOL STUDENTS FOR COURSES COMPLETED PRIOR TO HIGH SCHOOL GRADUATION. Washington State University encourages students to complete rigorous college preparatory courses in high school, or to take college courses while in high school if they have adequate preparation. In some cases college credit may be awarded when consistent with the following criteria:
(a) High School Courses: Some high schools may offer instruction at the college level, and when consistent with university and academic department policies, college credit will be awarded if student achievement is validated by an approved national examination such as Advanced Placement or International Baccalaureate, or a review or examination administered by the university.
(b) Running Start Program: Credit will be awarded for college courses taken prior to high school graduation when such courses are completed through the state of Washington’s Running Start Program.
(c) Other Courses: College credit may be awarded for courses taken in high school when consistent with the following conditions:
(1) The course must also be currently available on the campus of the regionally accredited college or university and must be listed in the college or university catalog. The course, regardless of setting, must use the college or university curriculum.
(2) Students interested in credit must register and pay fees at the beginning of the term and be subject to the same grading and
tuition refund policies as students on the campus of the regionally accredited college or university. The fees charged for the course would be the same as fees charged on the college or university campus.

3. The faculty teaching the course in high school must carry a regular or adjunct faculty appointment at the regionally accredited college or university.

4. The students taking the course in the high school must be assessed and graded in the same manner as students taking the course on the campus of the regionally accredited college or university. Student work, whether completed for the course offered on-campus or at the high school, must be graded and evaluated by the same standards.

32. EXTENSION CREDIT FOR TEACHING CERTIFICATES. A maximum of 3 semester hours of the fifth year of study for the Standard Certificate may be taken by correspondence.

34. REPEAT COURSES. Students who wish to repeat a course in which they have received a grade of C- or below or an incomplete (I) or a withdrawal (W) will be eligible to enroll within the next two semesters ONLY if there is space available in the course. NOTE: If a student repeats a course in which an incomplete grade was received, the incomplete grade will be changed to F. (See Rule 90h.)

(a) Repeating courses graded below C. A grade of C- or below may be disregarded if the student repeats the course and earns another grade. The last grade received shall stand as the course grade, and the last grade only shall count on the cumulative grade point average and contribute to the total number of hours required for graduation. For some purposes, the first grade only shall be used. For purpose of record the series of repeats and grades will be retained on the student’s official record. Grades C and above may not be repeated for credit or grade points. It is the student’s responsibility to indicate all resident repeats at the time of registration. Repeats by correspondence, extension, or in residence at other institutions must be reported in writing to the Office of the Registrar.

(b) Repeating for additional credit.

(1) Some courses have been approved for repeat credit, i.e., the student may re-enroll in the course during a subsequent semester and credit may be accumulated. Such courses are designated in the WSU catalog as “May be repeated for credit” and will list the maximum credit limitation.

(2) Courses which have been approved for repeat credit, such as topics, may offer multiple sections of a course during any one semester. Students may not enroll in more than one section of these courses in any one semester; the repeat credit approval applies only to re-enrollment in a subsequent semester.

ACADEMIC DEFICIENCY

37. An undergraduate student who has a cumulative grade point average of 2.00 or higher but whose grade point average in each of the last two consecutive semesters is below 2.00 will be deficient and must apply to the Office of Academic Standing for reinstatement. Certified majors must have the permission of their major departments to retain certification. Students decertified under this rule will be permitted to enroll in courses normally reserved for certified majors during the next semester of their enrollment. In cases of repeat enrollments, Rule 34 applies.

38. An undergraduate who at the end of any semester has failed to maintain a 2.00 cumulative grade point average will be dropped and must have the permission of Academic Standing to re-enroll. A certified major who at the end of any semester has failed to maintain a 2.00 cumulative grade point average in major courses may be dropped (decertified) from the major. (See Rule 56.)

39. An undergraduate student who at the end of two consecutive semesters has failed to maintain a 2.00 cumulative grade point average will normally not be reinstated.

40. Appeals will be considered only when there are unusual extenuating circumstances and must be submitted in writing to Academic Standing.

41. An undergraduate student who has been reinstated after becoming deficient under Rules 37, 38 or 39 will be on official probation. The specific conditions of reinstatement for students who are on official probation will be determined by Academic Standing. Students on probation who fail to comply with the conditions of their reinstatement may be barred from future enrollment.

42. Students enrolled in professional programs (e.g., clinical courses in nursing) that involve human health care may be subject to more stringent requirements in grading, repeating course work, and retention provided the more stringent requirements are approved through Faculty Senate channels and are published and are made available to students prior to certification. Students are referred to the nursing and pharmacy offices for specific requirements.

43. In evaluating admission credentials of transfer students or when reconsidering reinstatement of former WSU students whose cumulative g.p.a. was below a 2.00 when they were dropped for low scholarship, all work completed prior to a specified date, not less than four years prior to the time of application, may be disregarded and all credit withheld. After 15 semester hours of satisfactory work at WSU following admission or reinstatement, the student may petition to restore some of the credits previously withheld. Only credit earned in courses graded C or better will be considered for restoration, and if approved, only the courses and credit (not grades or grade points) will be restored. Requests for admission or reinstatement and petitions for credit restoration will be considered by the Academic Advising and Reinstatement Subcommittee for former WSU students and by the Admissions Subcommittee for transfer students.

CONDUCT

45. Students, no matter where they reside, while enrolled in the institution, are responsible for their conduct to the President and the faculty, acting usually through the Vice Provost for Student Affairs or the University Conduct Committee or both. Students are expected to show due respect for order, morality, and the rights of others. Students who fail to conduct themselves properly are subject to discipline, which may extend to temporary or permanent removal from the institution.

ENROLLMENT, REGISTRATION, DROPPING COURSES, AND WITHDRAWALS

(See catalog for definition of full-time enrollment.)

47. PLACEMENT TESTS. All students will be required to take the registration placement tests as a prerequisite to enrollment in appropriate courses.

50. PASS, FAIL GRADING OPTIONS. Pass, fail options are available for undergraduate and graduate students. The adviser’s approval is required for undergraduates. No courses designated as meeting General Education Requirements for Graduation may be taken pass, fail by any undergraduate. No more than two courses may be taken on a pass, fail basis during any given semester. Two courses is the limit for summer session.

A total of six courses may be taken on a pass, fail basis by students initiating and completing work for a baccalaureate degree at Washington State University. Students in the College of Veterinary Medicine with advisor approval may enroll for a total of six courses in the professional curriculum on a pass, fail basis, subject to the regulations listed above. University Honors Program courses may be taken on a pass, fail basis only with the permission of the Honors Program Director.

Class 5 (except those working on second baccalaureate degree) and Class 6 (graduate) students are eligible to take courses on a pass, fail basis, but such work cannot be in the student’s official degree program or used for removal of a specific undergraduate deficiency. Credit hours earned under pass, fail are counted toward assistantship minimum hour requirements. There is no limit on the number of hours a graduate student may take on a pass, fail basis.

Alliances for transfer students are as follows:

Transfer status upon entering WSU - Pass, fail Allotment

1-44 credits six courses
45-59 credits five courses
60-74 credits four courses
75-89 credits three courses
90 and above credits two courses
A student may change a pass, fail enrollment to a regular letter-graded enrollment, or vice versa, during the first three weeks of classes. After the third week and through the last day of instruction in a semester (end of fifteenth week), a pass, fail enrollment can be changed to a letter-graded enrollment. The P (pass) grades earned by pass, fail enrollees will not be included in computing the g.p.a.; however, F grades earned by pass, fail enrollees will be included in g.p.a. computations. Departments and programs may deny their majors permission to take, on a pass, fail basis, courses in their major field or courses needed to meet departmental requirements. Departments have the prerogative of requesting, from the Office of the Registrar, the letter grade for courses a prospective major has taken on a pass, fail basis. Departments and programs may refuse to accept courses needed to meet the above requirements if the courses were completed on a pass, fail basis before the student was accepted into the department or program.

52. PREREQUISITE COURSES. All prerequisites shall be satisfactorily completed before the student may register in a course. The instructor may waive the prerequisite in the case of a student who has demonstrated competence or who has had academic experience equivalent to that represented by the prerequisite.

53. CERTIFICATION OF A MAJOR. An undergraduate may declare an academic major upon matriculation to the university. Upon completion of 24 hours, and meeting department, program, or school certification requirements, a student may certify in an academic major with the approval of the appropriate academic department, program, or school, and upon notification to the Student Advising and Learning Center. A student who has completed 60 semester hours must certify a major as a condition to further enrollment with approval as above. Transfer students with 60 or more semester hours of transfer credit who are undecided about a major may, upon notification of the Student Advising and Learning Center, spend one semester being advised within the Student Advising and Learning Center. Departments, programs, or schools may require additional criteria beyond the minimum 24 hours for certification and a grade point average higher than the minimum of 2.00. Consult the catalog for specific certification requirements.

54. MINOR OR SECOND MAJOR. A student who has completed 90 semester hours may certify a minor or second major with the approval of the department offering the second major or minor. The student should consult with the department concerning hours and grade point requirements and an approved schedule of studies to meet such requirements. A second major requires completion of departmental and college requirements for the major exclusive of General Education Requirements.

A minor requires a minimum of 16 semester hours, half of which must be in upper-division work. Upon completion of the requirements, the department will notify the Registrar, and the minor or second major will be posted on the student’s permanent record (transcript). (See approved list of minors page 118.)

55. CHANGE OF MAJOR. A student may change from one department to another only on approval of the chairpersons of the departments or deans concerned.

56. RECERTIFICATION. A certified major who becomes deficient and is dropped by the major department or program will be eligible to recertify, on a space-available basis, when the cumulative and major grade point averages are at or above the minimum level required for retention in the university (2.00) except in those departments which have limitations on certification.

58. PERMISSION TO REGISTER LATE. A student may not register after the second week of any session, except with the permission of the Registrar.

61. LATE SERVICE FEE. A student who does not enroll before classes start or pay fees on or before the due date will be assessed a service charge. (See page 9 for a list of charges.) A charge of $100.00 will be assessed to late registrations that occur after the tenth day of classes. A re-enrollment fee will be assessed those who pay tuition and fees after they have been disenrolled for nonpayment. (See page 8 for a list of charges.)

66. ADDING A COURSE. Students may add course enrollments only during the first two weeks of classes. (NOTE: If the course is being added pass, fail the approval of the student’s faculty advisor is also required.)

A student wishing to petition for an exception to the two-week deadline listed above must obtain the approval of the instructor and pay a service fee to add a course late.

67. DROPPING A COURSE. A student may drop a course without record up to the end of the 30th day of the semester in which the course is offered or according to a prorated schedule for shorter academic terms.

68. WITHDRAWAL FROM A COURSE BETWEEN THE 5TH WEEK AND THE END OF THE 9TH WEEK. A student may, with the payment of a service fee withdraw from a course between the 5th week and the end of the 9th week with a grade of W.

69. WITHDRAWAL FROM A COURSE AFTER THE 9TH WEEK OF A SEMESTER. Withdrawal from a course after the 9th week of a semester is available under the following conditions:

(a) Withdrawal may be granted for a course for which a passing grade is being earned if withdrawal is recommended by the Director of Health and Wellness Services as a result of illness, or if withdrawal is recommended by the academic dean of the unit in which the course is taught, because of other documented extenuating circumstances.

(b) From the end of the 9th week through the last day of instruction, new undergraduate students working towards their first WSU degree may be eligible to use an uncontested course withdrawal.

(c) Two uncontested course withdrawals are allowed in the course of earning a bachelor’s degree.

(d) The grade shall be marked W, and the service fee shall be mandatory.

70. WITHDRAWAL FROM THE INSTITUTION. Students who wish to withdraw from the institution initiate the withdrawal through the Office of Student Affairs at WSU Pullman or the Student Services Office at WSU Spokane, WSU Tri-Cities or WSU Vancouver.

(a) Students withdrawing during the first four weeks of the semester will have their permanent records marked “withdrew (date).” (Course enrollments will not be recorded.)

(b) Students withdrawing after the fourth week through the last day of instruction (end of the 15th week) will have their permanent records marked “withdrew (date),” and a grade of W will be recorded for each course enrollment.

(c) Students on academic probation during the semester of their withdrawal must obtain permission of Academic Standing to re-enroll.

ATTENDANCE

71. ADMISSION TO CLASSES. Instructors shall not permit a student to be enrolled in a class or admit a student more than three times as a visitor without an official enrollment notice.

72. CLASS ATTENDANCE DURING THE FIRST WEEK TO ENSURE ENROLLMENT. Students who have not attended class and laboratory meetings during the first week of the semester may be dropped from the course by the department. (Students should not assume that they have been dropped without verification from the department or Registrar’s Office.) Students having extenuating circumstances which prevent their attendance during the first week should notify the Office of Student Affairs. Student Affairs will notify instructors of the absence and the reason for it. Valid reasons for missing classes do not relieve the student of making up the work missed.

73. ABSENCES.

(a) An instructor shall report flagrant cases of absences in any course to the chairperson of the student’s major department or the Vice Provost for Student Affairs.

(b) UNIVERSITY SPONSORED. Any student who is required to participate in off-campus, university-sponsored activities such as field trips, musical performances, judging teams, intercollegiate athletic events, etc. should obtain an official Class Absence Request form from the faculty or staff member supervising the off-campus activity. The form must contain specific information concerning the activity and date, be signed by the supervising faculty or staff member, and be submitted by the student at least one week in advance to the individual instructors of the student’s classes.

It is requested that a student not be penalized for absence from class.
provided a properly signed Class Absence Request form has been filed with the instructor prior to the absence. In all instances, it is the student’s responsibility to make up all work missed. Problem cases should follow the Academic Complaint Procedures, Rule 104. (c) OTHER EXCUSED ABSENCES. Students must sometimes miss examinations or other academic obligations affecting their grades because of illness, personal crises, mandated court appearances, and the like. As long as such absences are not excessive, it is hoped that the instructor will provide and document reasonable accommodation. The instructor may require the student to submit a written explanation of the absence, but written excuses from health care personnel should not be required since these requests frequently put the health care personnel in untenable positions. A student who is dissatisfied with the instructor’s accommodation may follow the Academic Complaint Procedure, Rule 104. It is recommended that the instructor explain the procedures for excused absences early in the semester, preferably in a written syllabus distributed to all students in each class. Once announced, these procedures should be scrupulously followed unless extraordinary circumstances require an exception. Students who attempt to gain advantage through abuse of this policy (e.g., by providing an instructor with false information) may be referred to the Office of Student Affairs for disciplinary action.

**EXAMINATIONS**

74. FINAL EXAMINATIONS WEEK. The final examination week will span five days, from the Monday through the Friday immediately following the fifteenth week of the semester. Special examinations will be scheduled for the Saturday following the Friday of final examination week.

75. FINAL EXAMINATION SCHEDULE. The final examination schedule will be determined before the start of each semester and published in the semester time schedule by the Registrar based on previous enrollment for that semester. After publication, the schedule cannot be altered except as provided.

76. SCHEDULING ALL COMMON MORNING/EVENING EXAMS. Undergraduate (100-400-level) courses having an enrollment of at least two percent of the total student body or courses with multiple lecture sections may schedule not more than three examinations each semester at the periods of 7:00 to 8:00 a.m., 6:00 to 7:00 p.m. and 8:30 to 9:30 p.m., Monday through Friday, with the exception of Monday morning and Friday evening. If permission is to be granted for a large group exam, all sections of the course must give the exam on the same day and within the same time block unless given during the regular scheduled class time. One class ‘lecture period shall be omitted to compensate for each hour of examination. Proposed examination dates must be submitted to the Registrar’s Office not later than the first week of each semester so that a schedule for the entire semester may be circulated and posted. A class lecture period lost to Labor Day, Veterans Day, Martin Luther King, Jr. Day, and/or Presidents Day holiday(s) may be counted toward this compensation for an evening exam. (NOTE: Officially approved and scheduled night examinations have priority over all other academic and non-academic evening activities.)

77. SPECIAL PERIODS FOR FINAL EXAMINATIONS. During examination week time will be allowed to large courses for special examinations of the entire group. The privilege of giving such special examinations is necessarily limited in terms of periods available for such tests. The courses having the greatest number of students will be given first opportunity to utilize the special examination periods available.

78. THREE OR MORE IN ONE DAY. During final examination week, if the scheduled arrangement results in students having three or more examinations scheduled for any one day, any one of their instructors is authorized to excuse the students from the regularly scheduled examination and give a final examination to the students during the special exams time blocks. In cases of difficulty in arriving at a solution, students shall refer the matter to the chairpersons of their departments or to their academic advisors.

79. CLOSED WEEK. No examinations or quizzes (other than laboratory examinations, make-up examinations and make-up quizzes) may be given during the last week of instruction.

80. NO EARLY EXAMINATIONS. A student will not be granted special examinations for the purpose of leaving the institution before the close of the semester.

81. LENGTH OF EXAMINATIONS. All regular examinations in undergraduate courses during the regular fifteen weeks of instruction, except for common morning/evening examinations and take-home examinations, will be confined to the designated class meeting times scheduled for lecture, studio, laboratory, independent study or ensemble.

82. ACCOMMODATIONS OF RELIGIOUS OBSERVANCES IN THE ADMINISTRATION OF EXAMINATIONS. Washington State University is committed to providing people of diverse religious backgrounds access to education. In addition, law requires reasonable accommodation of religious beliefs and practices. Because religious observances do not always conform to state and university holidays, accommodation of these religious observances may be necessary in the administration of examinations. It is the policy of the university to provide reasonable accommodation consistent with the fair, efficient and secure administration of its programs. When tests or examinations fall on days objectionable to a student because of religious beliefs, the student should contact the instructor as soon as possible. The instructor may require the student to submit a concise, written statement of the reasons for the request. If the request appears to be made in good faith, the instructor should make alternate arrangements for administration of the examination or test, considering the integrity of the testing process, and fairness to all the students. If the instructor believes the request not to be in good faith, or if the instructor and the student are unable to agree on arrangements, the student or the instructor should seek the assistance of the department chair, cognizant dean, or the Vice Provost for Academic Affairs, in that order. The student may also contact the University Ombudsman. Students should understand that fairness in the examination process is an important consideration in the educational process and that they have a duty to cooperate in making alternate arrangements.

83. ACCOMMODATION OF DISABILITIES IN THE ADMINISTRATION OF EXAMINATIONS. Washington State University is committed to providing access to education for all of its students. In addition, federal law states that academic requirements must be modified on a case-by-case basis to afford qualified students with handicaps an equal educational opportunity. The nature of certain disabilities may necessitate accommodation of these disabilities in the administration of exams. It is the policy of the university to provide reasonable accommodation consistent with the fair, and secure administration of its programs.

A student with a disability who may require special accommodation should contact the Student Disability Resource Center (DRC) when he or she arrives on the WSU Pullman campus. On the branch campuses a student should contact the Office of Student Services. A file documenting the disability will be established, and an accommodation form initiated. The instructor may ask for verification of a disability when a student requests an accommodation for an examination. The Office of Student Services or DRC provides the disabled student with a disability with an accommodation form verifying a disability and specifying the appropriate testing accommodation designed to fit the individual needs of that student. If the instructor disagrees with the arrangements as presented in the form, the instructor and/or student should seek the assistance of the DRC, department chair, cognizant dean or Vice Provost for Academic Affairs, in that order. The student and instructor may also contact the University Ombudsman or Center for Human Rights.

88. PENALTY FOR ACADEMIC DISHONESTY. Cases of academic dishonesty shall be processed in accordance with the Academic Integrity Policy, as printed in the Student Handbook and the Faculty Manual and as available from the Office of Student Affairs.

89. FINAL GRADE SUBMITTAL. Final grades will be submitted to the Registrar’s Office by 4:00 p.m. on the second working day after the close of finals week. (Final grades for Summer Session will be submitted to the Registrar’s Office by 4:00 p.m. on the second working day following the last day of Summer Session.)
GRADES AND GRADE POINTS

90. GRADES AND GRADE POINTS. Washington State University uses letter grades and the four (+) point maximum grading scale. The grade A is the highest possible grade, and grades below D are considered failing. Plus (+) or minus (-) symbols are used to indicate grades that fall above or below the letter grades, but grades of A+ and D- are not used. For purposes of calculating grade points and averages, the plus (+) is equal to .3 and minus (-) equals .7 (e.g., a grade B+ is equivalent to 3.3 and A- is 3.7). A student’s work is normally rated in accordance with the following definitions:

90a. A. Student work demonstrates consistently excellent scholastic performance; thorough comprehension; ability to correlate the material with other ideas, to communicate and to deal effectively with course concepts and new material; reliability in attendance and attention to assignments.

90b. B. Student work demonstrates superior scholastic performance overall, reliability in attendance, and attention to assignments; may demonstrate excellence but be less consistent than the work of an A student.

90c. C. Student work demonstrates satisfactory performance overall, as well as reliability in attendance, and attention to assignments.

90d. D. Student work demonstrates minimal, barely passign performance overall; limited knowledge of subject matter.

90e. F. Student work demonstrates unsatisfactory performance and comprehension or unfulfilled requirements. The grade is failing.

90f. S. (Satisfactory.) Grade given upon satisfactory completion of courses numbered 499, 600, 700, 702, 800, special examinations (Rule 15) and other courses duly authorized for S, F grading by the Faculty Senate. (Courses approved for S, F grading are footnoted in the Fall and Spring Time Schedules.) A, S, or F grades only are used to report physical education activity grades. Courses approved for S, F grading may also be graded S at midsemester indicating satisfactory progress.

90g. P. (Passing.) A satisfactory grade for a course taken under the Pass, fail Grading Option. (See catalog.) Instructors will turn in regular letter grades for all students enrolled in courses under the pass, fail option but grades will appear on the student’s permanent record as P (Passing) or F (Failure).

90h. I. (Incomplete.) The term is used to indicate that a grade has been deferred. It is for students who for reasons beyond their control are unable to complete their work on time. Undergraduates or graduates who receive an I grade in an undergraduate course (100-499) have up to the end of the ensuing year to complete the course, unless a shorter interval is specified by the instructor. If the incomplete is not made up during the specified time or the student repeats the course, the I is changed to an F. (See Rule 34.) Faculty are required to submit an Incomplete Grade Report (IGR) to the departmental office with every I given. The IGR must specify conditions and requirements for completing the incomplete, as well as any time limitations less than one year.

90i. W. This is the term to be used if the student has filed, in the Registrar’s Office, official notice of a withdrawal from the course prior to the end of the 12th week, or withdrew passing in accordance with Rule 69, or withdrew from the university in accordance with Rule 70.

90j. X. Denotes continuing progress toward completion of special problems, research, thesis, or doctoral dissertation, i.e., 499, 600, 700, 702, 800; X grades are converted to S upon satisfactory completion. An X grade may also be used when no final grade is reported due to instructor’s illness or absence from town.

92. GRADE RECORDS. Class grade records (the records from which final grades for a given class are determined) are university records which must be maintained for five years after the end of the term. Department chairs or directors are responsible for identifying appropriate storage location, which may include the instructor’s campus office. Both the chair or director or their designees and the instructor shall have ready access to these records.

98. CORRECTION OF GRADE ERRORS. An instructor may not change a grade after it has been filed with the Registrar, except in the case of clerical error, which the instructor may correct by so certifying to the Registrar. Such change must be approved (signature required) by the chairperson of the department in which the course was offered.

99. GRADUATE STUDENT GRADES. On a program leading to an advanced degree, graduate students must attain a minimum grade point average of 3.00 on their graduate programs and a minimum grade point average of 3.00 in all 300-400-level and graduate courses. No grade below C is accepted in any course for graduate credit.

100. THE GRADE POINT SYSTEM

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Provides 4.0 grade points per credit hour.</td>
</tr>
<tr>
<td>A-</td>
<td>Provides 3.7 grade points per credit hour.</td>
</tr>
<tr>
<td>B+</td>
<td>Provides 3.3 grade points per credit hour.</td>
</tr>
<tr>
<td>B</td>
<td>Provides 3.0 grade points per credit hour.</td>
</tr>
<tr>
<td>B-</td>
<td>Provides 2.7 grade points per credit hour.</td>
</tr>
<tr>
<td>C+</td>
<td>Provides 2.3 grade points per credit hour.</td>
</tr>
<tr>
<td>C</td>
<td>Provides 2.0 grade points per credit hour.</td>
</tr>
<tr>
<td>C-</td>
<td>Provides 1.7 grade points per credit hour.</td>
</tr>
<tr>
<td>D+</td>
<td>Provides 1.3 grade points per credit hour.</td>
</tr>
<tr>
<td>D</td>
<td>Provides 1.0 grade points per credit hour.</td>
</tr>
<tr>
<td>F</td>
<td>Provides no credit or grade points.</td>
</tr>
<tr>
<td>P</td>
<td>Credit given—grade points not calculated.</td>
</tr>
<tr>
<td>S</td>
<td>Credit given—grade points not calculated.</td>
</tr>
<tr>
<td>I</td>
<td>Provides no credit or grade points.</td>
</tr>
<tr>
<td>W</td>
<td>Provides no credit or grade points.</td>
</tr>
<tr>
<td>X</td>
<td>Provides no credit or grade points.</td>
</tr>
</tbody>
</table>

101. Grade points shall not be granted for work taken by correspondence. Points will be counted for work taken in the extended university centers sponsored and controlled by Washington State University.

102. STUDENT’S SCHOLASTIC AVERAGE. A student’s scholastic average is determined by adding the grade points earned in all WSU course work and dividing by the total number of hours in which the student has been enrolled at WSU. I, W, S, P, and X grades are disregarded.

103. GROUP AVERAGES. Group averages, honor rolls, eligibility lists for honoraries, and similar lists are calculated on the basis of grades received in the Registrar’s Office by 4:00 p.m. two working days following the last day of final examinations.

104. ACADEMIC COMPLAINT PROCEDURES. Students having complaints relative to instruction or grading should refer them first to the instructor, and, if not resolved, then to the chairperson of the department in which the course is offered. The chairperson, if not able to resolve the problem to the student’s satisfaction, will refer the complaint, presumably with the chairperson’s written impressions, to the dean of the college. The student is encouraged then to go directly to the dean of the college. The Vice Provost for Student Affairs Committee, or the Provost are always available for any complaint not resolved to the student’s satisfaction. At the branch campuses, the procedure is identical except the academic area coordinator may substitute for the department chair and the campus dean may substitute for the college dean.

GRADUATION

106. APPLICATION FOR DEGREE (TO-DO LIST). Application for a bachelor’s or DVM degree should be made at the Registrar’s Office near the end of the junior year. The Registrar will furnish candidates with records of their grade points and the hours completed to date, and lists of major and General Education Requirements yet to be completed. The chairperson of the department is held responsible for checking all departmental requirements, including prerequisites for all courses and the
courses required in other departments. A graduation fee must be paid at the time of application.

108. STUDENT RESPONSIBILITY FOR GRADUATION. Together with the advisor, the student plans the program of study each semester. However, the written curriculum requirements described in the bulletin and catalog supplements are binding, and no advisor may waive or alter them. The student has the ultimate responsibility for meeting university, college and departmental graduation requirements.

109. PETITIONS. Students may petition for a change in graduation requirements or academic regulations by obtaining the signature of their department chairperson and dean on the appropriate form available in the Registrar’s Office.

114. REQUIREMENTS FOR UNDERGRADUATE DEGREES
(a) The four-year degree (BA, BS, B FA, B Lib A, B Mus)
   1. Meet the General Education Requirements for Graduation.
   2. Earn twice as many grade points as the number of hours enrolled in graded course work, in this or any institution for which a grade has been received.
   3. Earn twice as many grade points in the major subject as the number of hours enrolled graded course work in that major subject at Washington State University.
   4. Complete any of the four-year programs.
   5. Complete the senior year under the direction of the college in which the degree is to be granted. If any portion of the final year’s work is to be completed at another institution, advance approval must be obtained, in writing, from both the department chairperson and the dean of the college.
   6. Earn a minimum of 120 semester hours of credit, no more than 8 of which may be PEACT (Physical Education Activity) courses. (At least 30 must be WSU hours; see Rule 6.)
   7. Earn a minimum of 40 semester hours of credit in 300-400-level courses exclusive of credit earned at two-year or community colleges; 500-level courses will count toward the 300-400-level requirement, but an undergraduate may not be required to enroll in, or complete a 500-level course as a requirement for the baccalaureate degree.
(b) The five-year degree (B Arch, BS Cst M, B Phar)
   1. Meet requirements 1, 2, 3, and 7 listed under (a) above.
   2. Complete any of the five-year programs.
   3. Complete the fifth year under the direction of the college in which the degree is to be granted. If any portion of the final year’s work is to be completed at another institution, advance approval must be obtained in writing, from both the department chairperson and the dean of the college.
   4. Earn a minimum of 150 semester hours of credit, no more than 10 of which may be from PEACT (Physical Education Activity) courses. (See Rule 6.)

115. REQUIREMENTS FOR THE DOCTOR OF VETERINARY MEDICINE DEGREE (DVM)
(a) Complete the four-year professional program.
(b) Earn a baccalaureate degree from an accredited institution.
(c) Earn twice as many grade points as the number of hours required in the professional program.

116. REQUIREMENTS FOR MASTER’S DEGREES
(a) Spend not less than six semesters beyond the baccalaureate degree at least four of which must be at Washington State University.
(b) Spend not less than a minimum of two consecutive semesters in residence at Washington State University.
(c) Earn not less than 72 semester credit hours beyond the baccalaureate degree to include a minimum of 34 semester hours (45 semester hours for the Doctor of Arts degree) of 400- and 500-level course work listed in the Graduate Study Bulletin.
(d) Earn a minimum grade point average of 3.00 on a graduate program and in all 300-400-level and graduate course work completed for the doctor’s degree.
(e) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(f) Successfully complete graduate examinations.

117. REQUIREMENTS FOR DOCTOR’S DEGREES
(a) Spend not less than six semesters beyond the baccalaureate degree at least four of which must be at Washington State University.
(b) Spend not less than a minimum of two consecutive semesters in residence at Washington State University.
(c) Earn not less than 72 semester credit hours beyond the baccalaureate degree to include a minimum of 34 semester hours (45 semester hours for the Doctor of Arts degree) of 400- and 500-level course work listed in the Graduate Study Bulletin.
(d) Earn a minimum grade point average of 3.00 on a graduate program and in all 300-400-level and graduate course work completed for the doctor’s degree.
(e) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(f) Successfully complete graduate examinations.

118. TWO OR MORE BACHELOR’S DEGREES FROM WSU. One four-year undergraduate degree requires a minimum of 120 semester hours. For each additional bachelor’s degree, the student must complete an additional 30 semester hours and satisfy all requirements of the second degree program.

121. SUMMER SESSION CREDITS. Credit earned during summer sessions may be applied toward the fulfillment of requirements for baccalaureate and advanced degrees in the same manner and subject to the same rules as credit earned during semesters of regular academic years.

123. LIMIT ON CORRESPONDENCE CREDIT. A student working for a degree at Washington State University shall be limited on correspondence course credit to not more than 25% of the total hours required for any undergraduate degree.

125. DATE OF GRADUATION. Students will be recommended for their degrees at the end of the semester or term in which they complete their requirements. Diplomas will be dated the Saturday following the last day of final examination week for the fall semester, the day of commencement for the spring semester, and the Saturday following the last day of instruction for summer session.

HONORS
Honors rolls and lists are calculated on the basis of grades received by 4:00 p.m. two working days following the last day of final examinations. (See Rule 103.)

133. PRESIDENT’S HONOR ROLES. An undergraduate will be named to the President’s Honor Roll under either of the following conditions:
(a) By achieving an overall grade point of 3.75 while enrolled in at least 9 graded hours in a single semester at Washington State University.
(b) By achieving a cumulative grade point average of 3.50 based on at least 15 cumulative hours of graded work at Washington State University.

137. RECOGNITION FOR SELECTED BACCALAUREATE DEGREE CANDIDATES. Candidates for baccalaureate degrees who have completed at least 30 hours of graded work (grades in which grade points are awarded) at Washington State University will graduate summa cum laude if the cumulative grade point average for work completed at Washington State University is 3.90 or better, will graduate magna cum laude if the minimum cumulative grade point average is 3.70 but less than 3.90, and will graduate cum laude if the minimum cumulative grade point average is 3.50 but less than 3.70.

The appropriate Latin phrase will be printed on the diploma and on the final transcript. Qualified students electing to participate in the Honors Program who complete its requirements satisfactorily, regardless of whether they qualify to graduate summa cum laude, magna cum laude, or cum laude, will receive a certificate of completion and a printed notation on the final transcript.

Computation of graduation honors will be done prior to the end of the final semester to allow for publication of the appropriate honors in advance of graduation. However, following the student’s final semester, the Registrar will recompute the student’s g.p.a. including the last semester’s work, and only this computation will determine official graduation honors.

Washington State University and its various colleges reserve the right to change
Appendix—Academic Regulations

the rules regulating admission to, instruction in, and graduation from Washington State University and any other regulations affecting the student body. Such regulations shall go into effect whenever the proper authorities may determine and shall apply to prospective students and to those who may at that time be enrolled.

SOLICITING

150. No agent, solicitor, or university individual or group shall be permitted to canvass or solicit faculty members during office hours in the interests of business, charity, or any other purpose not directly connected with university interest or official duties.

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Rules are indexed by subject. Allowances have been made in number sequence for additional rules.

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