

# Academic Affairs Research

## NEWSLETTER

Fall 2013

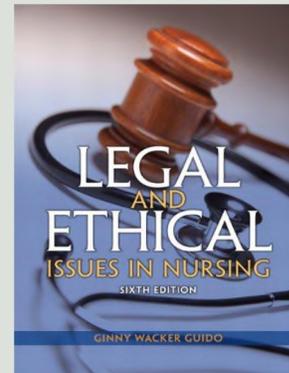
Welcome to the Fall edition of the quarterly Research Newsletter. The purpose of the newsletter is to share with the university academic community the accomplishments of our faculty in the publication of books, chapters, journal articles, conference presentations, exhibits, invited lectures, and awards during the previous quarter. We will announce research project awards and contracts and grants from philanthropic foundations that have been funded in the previous quarter. Periodically, we will include feature articles or matters of interest to the research community as well as honors and awards received by faculty.

## Books

**Ginny Guido** (Nursing)

*Legal and Ethical Issues in Nursing, Sixth Edition*  
Upper Saddle River, NJ: Pearson Education, 2013.

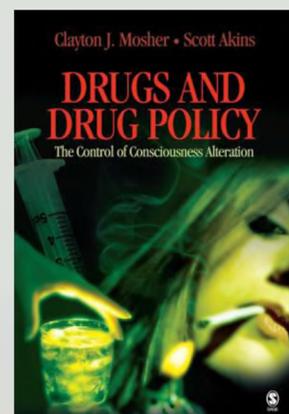
The text reflects the continuing influence that the law, legal issues, and ethical issues have on the professional practice of the discipline of nursing. The text also presents innovative health care models, the effects of federal and state laws on nursing practice, and a realistic incorporation of ethics with the nurse's legal accountability in the delivery of competent, quality nursing care.



**Clay Moshier** (Sociology) & Scott Akins

*Drugs and Drug Policy: The Control of Consciousness Alteration, Second Edition*  
Thousand Oaks, CA: Sage Publications, Inc., 2013.

This engaging text provides a cross-national perspective on the use and regulation of both legal and illegal drugs. It examines and critiques drug policies in the United States and abroad in terms of their scope, goals, and effectiveness. Authors Clayton J. Moshier and Scott Akins also discuss the physiological, psychological, and behavioral effects of legal and illicit drugs; the patterns and correlates of use; and theories of the "causes" of drug use.



# Recent Publications

## Journal Articles and Book Chapters

**Cory Bolkan** (Human Development)

Bolkan, C., L.B. Bonner, D.G. Campbell, A.L. Lanto, K. Zivin, E. Chaney, and L.R. Rubenstein. 2013. "Family Involvement, Medication Adherence, and Depression Outcomes among Patients in Veterans." *Psychiatric Services*, 64/5: 472-478. This paper explored how family involvement in health care and social support among 761 depressed Veterans in primary care related to medication adherence and depression outcomes over 18 months. We found a link between patient satisfaction with family involvement by clinicians and clinical outcomes among depressed Veterans. In addition, clinician responsiveness to patient wishes may be more important than the amount of family involvement per se. Further research is needed to clarify when and how clinicians should involve a patient's family in depression treatment in primary care.

**David Chiu** (Computer Science)

Chiu, D. and S. Wallace. 2013. "On the Science in Computer Science: Integrating Research Preparedness in Undergraduate CS." *Journal of Computing Sciences in Colleges*, 29/1:157-163. This paper introduced the concept of "research preparatory" projects and have begun to include these open-ended projects in existing undergraduate curriculum to improve student's ability to reason analytically; design experiments to test their assumptions and to evaluate their solutions; and to communicate effectively.

**Allison Coffin** (Neuroscience)

Coffin, A.B., K.L. Williamson, A. Mamiya, D.W. Raible, and E.W. Rubel. 2013. "Profiling Drug-Induced Cell Death Pathways in the Zebrafish Lateral Line." *Apoptosis*. 18/4:393-408. This paper compares cell death pathways activated by different hearing toxins in an effort to understand the cellular basis of hearing loss.

**Allison Coffin** (Neuroscience)

Brown A.D., A.B. Coffin, J.A. Sisneros, T. Jurasin, and C. Nyugen. 2013. "Differences in Lateral Line Morphology between Hatchery- and Wild-Origin Steelhead." *PLoS One*, 8/3: e59162. doi:10.1371/journal.pone.0059162. This article shows the use of fluorescent labeling techniques to show that hatchery reared steelhead have defects in sensory structures, which could contribute to poor survival of these fish once they are released into the wild.

**Allison Coffin** (Neuroscience)

Coffin, A.B., E.W. Rubel, and D.W. Raible. 2013. "Bax, Bcl2, and p53 Differentially Regulate Neomycin- and Gentamicin-Induced Hair Cell Death in the Zebrafish Lateral Line." *Journal of the Association for Research in Otolaryngology*. 14/5:645-659. This study investigates the contribution of specific cell death pathways to hearing loss caused by certain types of antibiotics.

**Cynthia Cooper** (School of Molecular Biosciences)

Beirl, A.J., L.F. Clancey, C.D. Cooper, and T.H. Linbo, 2013. "Maintenance of Melanophore Morphology and Survival is Cathepsin and vps11 Dependent in Zebrafish." *PLoS One*, 8(5): e65096. doi:10.1371/journal.pone.0065096. Using model organism zebra fish, we studied the contributions made by vacuolar protein sorting 11 in promoting normal melanocyte survival. As diseases of melanocytes including melanoma – are increasing, this study will shed light on the pathogenesis of melanocyte specific diseases and help to develop new approaches for selectively killing diseased cells.

**Marcelo Diversi** (Human Development)

Diversi, M., and C. Moreira. 2013. "Betweeners speak up: Challenging knowledge production through collaborative writing and visceral knowledge in decolonizing times." *International Review of Qualitative Research*, 5/4: 399-406. Using a decolonizing approach to ways of knowing, we write a critique of the Western-centric knowledge production and its emphasis on the expert-student binary. It is also an act of resistance to the academic ranking system and the idea that better work comes from isolated individuals.

**Marcelo Diversi** (Human Development)

Diversi, M., and C. Moreira. (2013). *Migrant Stories: Searching for Healing in Autoethnographies of Diaspora*. In Mary Weems (Ed.), *Writings of Healing and Resistance: Empathy and the Imagination-Intellect. Culture Critique. Volume 7* (135-146) – New York: Peter Lang. In our view as accidental immigrants, the dominant theoretical expertise of the other, of the immigrant, is toxic and exclusionary, regardless of the expert's ethical protestations to the contrary. In the spirit of resistance against ideologies of domination via theoretical expertise and of healing through shared narratives of life as betweeners, we stand on the shoulders of inclusionary performers to try and create representational mirrors of our own encounter with Diaspora-situated, subjective, and partial.

# Recent Publications

## Journal Articles and Book Chapters *continued*

### **Tutku Karacolak** (Electrical Engineering)

Karacolak, T., E.C. Moreland, and E. Topsakal. 2013. "Cole-Cole Model for Glucose-Dependent Dielectric Properties of Blood Plasma for Continuous Glucose Monitoring." *Microwave and Optical Technology Letters*, 55/5: 1160-1164. In this study, we show a correlation between electrical properties (relative permittivity and conductivity) of blood plasma and plasma glucose concentration. To formulate that correlation, we performed electrical property measurements on blood samples collected from 10 adults between the ages of 18 and 40 at University of Alabama Birmingham Children's hospital. The measurements are conducted between 500 MHz and 20 GHz band. Using the data obtained from measurements, we developed a single-pole conductivity as a function of plasma blood glucose concentration.

### **Dave (Dae-Wook) Kim** (Mechanical Engineering)

Kim, D., P. Kwon, J. Lantrip, C. Sturtvant, and X. Wang. 2013. "Tool Wear of Coated Drills in Drilling CFRP." *Journal of Manufacturing Processes*, 15/1: 127-135. This study aimed to investigate the wear of ultra-hard ceramic coated tools when drilling aerospace composite materials. The ultra-hard diamond coating significantly reduced the edge rounding wear while the AlTiN coating did not protect the drill due to its oxidation during drilling.

### **Dave (Dae-Wook) Kim** (Mechanical Engineering)

He, B., D. Kim, S. Kim., and C. Shim. 2013. "An Experimental and Numerical Study on the Interference-Fit Pin Installation Process for Cross-Ply GFRP." *Composites B: Engineering*, 54: 153-162. An interference-fit pin installation process simulation for composite joint was conducted using three-dimensional (3-D) finite element analysis (FEA) with consideration of the friction coefficient (0.1) and interference-fit percentages (0.4% and 1.0%). With increasing interference fit percent, the strain magnitudes increased after pin installation. This experimental and computer simulation results show that composite joint fatigue life can be extended using innovative interference-fit joining technology.

### **Tahira Probst** (Psychology)

Graso, M. and T. Probst. 2013. "Pressure to Produce = Pressure to Reduce Accident Reporting?" *Accident Analysis & Prevention*, 59C: 580-587. This paper presents data from a sample of copper miners that suggests accident under-reporting may in part be due to high levels of perceived production pressure. Employees under high levels of production pressure not only experienced more accidents overall, they also reported proportionally fewer of them to the organization.

### **Praveen Sekhar** (School of Engineering & Computer Science)

Brosha, E., F. Garzon, R. Mukundan, and P.K. Sekhar. 2013. "Effect of Perovskite Electrode Composition on Mixed Potential Sensor Response." *Sensors and Actuators B: Chemical*, 183/7: 20-24. In this article, the influence of perovskite electrode composition on an electrochemical based mixed potential sensor response is reported. Specifically, various stoichiometry of Strontium doped Lanthanum Chromite materials were used as the sensing electrode. Yttria-Stabilized Zirconia was used as the solid electrolyte and Pt as the counter electrode. The effect of varying doping levels of Strontium on the sensor response was studied. NO, NO<sub>2</sub>, C<sub>3</sub>H<sub>6</sub>, and C<sub>4</sub>H<sub>10</sub> were used as test gases. The sensor response was studied under open-circuit and current biased conditions.

**Praveen Sekhar and Kumar Subramanian** (School of Engineering and Computer Science) [Sekhar, P.K.](#) and K. Subramanian. 2013. "Electrical Characterization of a Mixed Potential Propylene Sensor." *Sensors and Actuators B: Chemical*, 188/11: Pages 367-371. In this article, electrical characterization of a 'La<sub>0.8</sub>Sr<sub>0.2</sub>CrO<sub>3</sub>/YSZ/Pt' non-Nernstian propylene gas sensor is reported. The effect of the concentration of the test gas (25-200 ppm) on the sensor response was studied using impedance spectroscopy and current-voltage curves. The controlled interface sensor design facilitated impedancemetric and potentiometric sensing schemes.

# Recent Publications

## Conference Presentations, Exhibits, Invited Lectures, Awards

**Cory Bolkan** (Human Development) co-authored a presentation with WSUV undergraduate student Stacey Schubel also of Human Development at the Northwest Council on Family Relations annual conference April 5-6, 2013. Ms. Schubel won the award for best undergraduate research poster on her presentation entitled "The Importance of Family Communication About Loss, Grief, and Death" in which she reported on adults' reflections of grief and loss experienced during childhood and best practices for family communication about death.

**Cory Bolkan** (Human Development) co-authored a presentation with VA colleagues at the 2013 Annual Research Meeting of AcademyHealth in June. The presentation, title "Improving Mental Health Care for Women Veterans with Depression in Primary Care" investigated care needs of women Veterans. We found they are likely to present in primary care with comorbid anxiety/depressive conditions and that their clinical presentation may be complex. More primary care-mental health integration (PC-MHI) may be beneficial to women given their unique needs, use of, and preference for mental health specialty services for depression care.

**David Chiu** (Computer Science) co-authored a paper "Dynamic Bitmap Index Recompression through Workload-Based Optimizations" with Fredton Doan, Brasil Perez Lukes, Jason Sawin, Gheorghii Guzun, and Guadalupe Canahuate at IDEAS' 13 17th International Database Engineering & Applications Symposium in Barcelona, Spain on October 9-11, 2013.

**Allison Coffin** (Neuroscience) gave an invited presentation entitled, "Effects of Hatchery Rearing on Salmonid Mechanosensory Systems" at the Third International Conference on the Effects of Noise on Aquatic Life.

**Cynthia Cooper** (School of Molecular Biosciences) was invited to present work "Examining a Novel Zebrafish Model for Human Albinism at the International Pigment Cell Development Workshop in Edinburgh, Scotland, May 6-8, 2013. This new zebrafish model could shed light on previously unknown molecular mechanisms underlying the development of albinism in humans.

**Marcelo Diversi** (Human Development) and Claudio Moreira (UMASS-Amherst) were invited to give a workshop on Decolonizing Classrooms and Epistemologies, May 16, 2013 at the 9th International Congress of Qualitative Inquiry. University of Illinois Urbana-Champaign, Illinois.

**Marcelo Diversi** (Human Development) was invited to be a keynote speaker at the Northwest Council on Family Relations 2013 Conference, Portland State University, Oregon, on "Inclusive Acculturation: From Assimilation to Multiculturalism." This presentation was based on ethnographic research with undocumented Latino youth.

**Michael Dunn** (Education) presented "Writing instruction at Tier 2: Evidence from an intervention Study" at the Council for Exceptional Children Conference in San Antonio, Texas on April 3-6, 2013. The author (2011) employed action research methods with 13 fourth-grade students to offer them 50-minutes writing strategy sessions over 25 days. After baseline, the intervention specialist presented the Ask, Reflect, Text mnemonic strategy. In every second session thereafter, students completed more story probes to demonstrate resulting change in story content and quality. All students improved in story content; story quality proved to be more of a challenge.

**Dene Grigar** (Creative Media & Digital Culture) was invited to present at the Association of Writing and Writing Programs 2013 Conference, April 2013 in Boston, MA. The title of her paper was "Digital Writing: Performances and Readings of Electronic Literature."

**Dene Grigar** (Creative Media & Digital Culture) was a featured speaker at the Digital cultures in the Age of Big Data Institute held at Bowling Green State University, May 13-18. The title of her talk was "Curating Born Digital Literature."

**John Harrison** (School of the Environment) earned The Ecological Society of America's 2013 Sustainability Science Award for work on the book "Sees of Sustainability: Lessons from the Birthplace of the Green Revolution." This work was an analysis of agricultural development and transitions toward more sustainable management of the Yaqui Valley in Sonora, Mexico. This award is shared with 14 other contributors to the book, including its editor, Pamela Matson. The Sustainability Science Award is given to the authors of a scholarly work that makes the greatest contribution to the emerging science of ecosystem and regional sustainability.

# Recent Publications

## Conference Presentations, Exhibits, Invited Lectures, Awards *continued*

**Brett Oppegaard** (Creative Media and Digital Culture) presented “Bodystorming with a Wood Block: Formative Design Ideas for Mobile content, Shaped by Activity Theory” June 16, 2013 at the International Communication Association conference in London. Dr. Oppegaard also gave presentation on “Place-based audio or video? A comparative analysis at The Old Apple Tree” on June 19th, 2013 at the International Communication Association Preconference: Mobile Communication, Community and Locative Media in London. Additionally, Dr. Oppegaard gave the keynote address “Embracing Mobile: How Integrating Ubiquitous Computing Technologies Can Help to Develop New Voices, Engage With Diverse Perspectives, and Attract New Audiences” In April, 2013 at the National Association for Interpretation workshop in Vancouver, WA, which was simulcasted to audiences in Seattle, Vancouver, BC and Anchorage, AK.

**Brett Oppegaard** (Creative Media and Digital Culture) earned The Washington State Department of Archaeology and Historic Preservation Officer’s Award for outstanding achievement in the media, for his research related to the Fort Vancouver Mobile project, during an awards ceremony in Vancouver, WA in May, 2013. Dr. Oppegaard was also awarded The John Wesley Powell Prize for outstanding achievement in the field of historical displays, for the “kanaka” module of the Fort Vancouver Mobile app, during a Society for History in the Federal Government awards ceremony in April in Washington, D.C.

**Brett Oppegaard** (Creative Media and Digital Culture) installed a permanent Fort Vancouver Mobile exhibit at the Fort Vancouver National Historic site’s visitors’ center, to share media from the mobile app research in other forms; in this case, a wall-sized cabin reconstruction with a video display playing looped content from the research app.

**Tahira Probst** (Psychology) was granted a Visiting Professor Research Award and \$10,000 stipend funded by the University of Rome to conduct research on workplace safety in Italy for the Summer 2014.

**Tahira Probst** (Psychology) was an invited speaker at the CPWR/NIOSH/NIEHS Safety Culture/Climate Workshop in Washington, DC in June 11-12, 2013. She spoke about measurement challenges associated with the evaluation of organizational safety culture and climate.

**Gretchen Rollwagen-Bollens** (School of the Environment and School of Biological Sciences) and **Paul Thiers** (Public Affairs) gave a joint presentation at the Ecological Society of America’s annual meeting in August 2013. The title of their presentation was “Teaching Socio-Environmental Synthesis to Non-Traditional College Students by Linking Natural Science and Social Science Courses” and included results of their collaboration on a socio-environmental synthesis teaching study supported by the National Science Foundation.

**Praveen Sekhar** was an invited presenter on the Environmental Protection Agency’s special workshop on low cost air quality sensors, March 19-20, 2013. He delivered a lecture on ‘Low Cost Air Quality Sensors and Associated Data Quality.’ In this talk, real-world observations on data quality associated with low cost sensors was presented. Data from both a laboratory setting and a field setting was taken as case studies.

# Funded Research

**Cynthia Cooper**, WSUV Faculty Research Mini- Grant - \$4500

*Identification and characterization of pigmentation and hearing effectors using model organism zebrafish.* The goal of this study is to conduct a natural product drug screen to look for novel effectors of pigment synthesis. Toxicity of identified drugs will be tested using zebrafish lateral line hair cells (cells conserved in humans and important for hearing) in collaboration with Allison Coffin's lab.

**Cynthia Cooper**, WSU Program Development Stimulus Program - \$28,372

*Defining Vps protein function in zebrafish melanocytes and melanoma models.* These funds will be used to collect preliminary data regarding the role of vacuolar protein sorting proteins in melanoma progression. The revised proposal will be re-submitted to the National Cancer Institute summer 2014.

**Cynthia Cooper, Allison Coffin** - CAS Research Award - \$4,300.

*Using zebrafish as a model for drug discovery: screening a natural products library.* These funds were used to purchase a natural products library for joint use by the Coffin and Cooper Labs in an effort to find novel effectors targeting zebrafish hearing and pigmentation systems.

**Dene Grigar**, National Endowment for the Humanities - \$52,003

*Pathfinders: Documenting the Experience of Early Digital Literature*

The project, at its core, centers on digital preservation, specifically preservation of early digital works of the late 20th century.

**Xinghui Zhao, David Chiu, Scott Wallace**

NSF/TCPP - \$2,500

NSF/TCPP Curriculum Early Adoption at Washington State University – Vancouver

*To curtail power consumption, chip design has shifted towards the multi-and many-core architecture.* As a result, parallel and distributed computing (PDC) is no longer niche, but an essential ingredient in all aspects of computer science. The PIs propose to integrate elements of PDC curriculum into multiple courses at different levels. This is a department wide, multiple course and multiple semester effort, which aims to provide at least one lower level and one upper level course containing PDC concepts in every semester.

# Funded Research

Stephen Bollens

DOE-BPA

\$180,054

WSU FDN

\$15,000

David Chiu

OregonBEST

\$20,146

Samuel Dira

WENNER-GREN FDN

\$17,500

Dawn Doutrich

HHS

\$270,000

Stephen Kucer

ESD #112

\$34,494

Kristin Lesseig

ESD #112

\$11,252

Alair Maclean

MARGUERITE CASEY FDN

\$30,000

Michael Morgan

HHS

\$413,634

Christine Portfors

HHS

\$453,000

Yoshie Sano

UNIV MA

\$2,865

Cheryl Schultz

DOI- US F/W

\$6,462

Cheryl Schultz

DOI-BLM Schultz

\$20,000

Praveen Sekhar

LANL

\$40,000

Brian Tissot

DOC NOAA

\$79,870

Scott Wallace

OR BEST CTR

\$17,395