

Contact: Diana Gonzalez

**PROFESSIONAL DEVELOPMENT ASSIGNMENT REPORTS FOR FY 2015**

**Action Requested:** Receive the professional development assignment reports submitted by the Regent universities for FY 2015.

**Executive Summary:** Each year, the Board of Regents is asked to approve faculty professional development assignments as specified in the Board Policy Manual §4.09. In December 2013 (Agenda Item ESAC 2), the Board approved 124 professional development assignments for FY 2015. Board Policy §4.09E directs the institutions to submit a yearly report of the completed professional development assignments. Pursuant to the 2011 Iowa Act, Chapter 122 (HF 45), “the board shall annually prepare a report comparing each assignment proposal to the results received.”

A brief description of each professional development assignment completed in 2014-2015 is available in Attachments A-C (pages 4-38); this report provides information about the value added to the students, university, and state from the assignments, including more than \$10.5 million of funds obtained during or after the faculty member’s professional development assignment; there are a number of grant proposals that have the potential for funding but they are still pending. The objectives of the professional development assignments were met. This report addresses the Board of Regents Strategic Plan priority for “educational excellence and impact” as well as “economic development and vitality.”

**Background:**

- ◇ Review process. A rigorous review process was conducted for each proposed professional development assignment. Faculty recipients were selected on the basis of peer review and recommendation at the department and college levels at each university and final approval by the provost. One of the criteria considered is the impact of the proposed professional development assignment to the university, students, and the state.
- ◇ Professional development assignment activities. Faculty members engaged in a variety of productive activities during their professional development assignments in FY 2015. For example, faculty members had the opportunity to engage in intensive research, write scholarly books and articles, create new works of art and composition, present papers, work in industry, develop modeling systems, and develop grant proposals, software, course materials, and multimedia resources for their disciplines.

Professional Development Assignments enrich the educational environment of the universities and are considered essential to the academic vitality of the universities. Educational excellence results from a vital faculty which actively pursues new developments in knowledge and teaching. Additional significant benefits obtained by the faculty members are the collaborations that occur during the professional development assignment; they frequently lead to continued mutual efforts and in some cases open doors for external grant funding.

- ◇ Length of assignments. Professional development assignments were either one or two semesters in length. For professional development assignments that were two semesters in length, compensation was limited to the amount of compensation a faculty member would receive during a semester-long assignment.

- ◇ Obligation to institution. Iowa Code §262.9(13) requires that a faculty member return to the institution for twice the length of time of their professional development assignment or to repay the costs associated with the professional development assignment if the faculty member does not return to the institution. Following their professional development assignments, faculty members are responsible for reporting the results of their assignments as specified by Board Policy §4.09E and their institutional guidelines.
- ◇ Number of professional development assignments. There were 124 professional development assignments approved by the Board of Regents for FY 2015; 113 reports are included in the Attachments.
  - ☑ University of Iowa. There were 68 professional development assignments approved for FY 2015. Three faculty members deferred the PDAs to a later time, two faculty members declined their PDA, and two faculty members left the university and did not take the PDA. Two faculty members spread their award over two academic years and their reports will be included with the 2014-2015 reports. The total number of reports included for SUI is 63.
  - ☑ Iowa State University. There were 37 professional development assignments approved for FY 2015. There were two professional development assignments cancelled; one is not completed; and one was completed by a faculty member who has left the university. The total number of reports included for ISU is 33.
  - ☑ University of Northern Iowa. There were 19 professional development assignments approved for FY 2015. The total number of reports included for UNI is 17.
- ◇ Faculty replacement costs. Costs are minimized to the greatest extent possible by using a variety of strategies, including having colleagues cover courses, deferring non-required courses to a later time, and adjusting schedules of existing faculty members. Faculty members who are on professional development assignment for a full year receive only half their salary; the balance is used to offset replacement costs.
- ◇ Goals met. The recipients of the professional development assignments for 2014-2015 identified their proposed goals. All the goals were met or exceeded; in some instances, the goals were modified to reflect available resources.
- ◇ Average length of service. The average length of service for the proposed professional development assignment recipients in FY 2015 was 17.9 years at SUI; 14.6 years at ISU; and 12.4 years at UNI.
- ◇ External funding obtained while on professional development assignment. A number of faculty members received external grant funding while on professional development assignment or subsequent to the PDA. In addition, many PDA recipients submitted grant proposals which are still pending.
  - ☑ At the University of Iowa, 13 faculty members received external funding either during their assignment or following the assignment. The total amount received was approximately \$4.2 million. An additional \$11.4 million in funding proposals was submitted and is still pending.

- At Iowa State University, 11 faculty members received external funding either during their assignment or following the assignment. The total amount received was approximately \$6.3 million. An additional \$4.3 million in funding proposals was submitted and is still pending.
- At the University of Northern Iowa, a proposal for a National Science Foundation grant for \$253,345 was submitted and is still pending.
- ◇ Return on investment. While the replacement cost of the faculty on professional development assignments was projected to be \$438,879, faculty members received external grant funding as a result of their assignments for more than \$10.5 million. This means that for every dollar spent on a professional development assignment, \$23.92 was received from external funding. If additional proposals submitted are funded, the universities could receive approximately \$16 million of new external funds.

**UNIVERSITY OF IOWA**

**ADAMS, LAFAYETTE B., ASSOCIATE PROFESSOR, ENGLISH, 20 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* New Daughters: The Transformation of Middle-Class Womanhood in the Gilded Age  
During his PDA semester, Professor Adams read scholarship, conducted research, and wrote for his current project on the immigration movement in the US South in the years 1880-1914. He delivered one lecture on his research in France, and he drafted most of an article on the southern immigration movement's response to African Americans. Professor Adams' work will benefit the students in his courses, all of which draw from his research. Professor Adams' work will also benefit US society more broadly, as his research helps uncover the historical roots of some of our most vexing twenty-first-century social conflicts involving race and immigration.

**ANTHONY, JERRY, ASSOCIATE PROFESSOR, URBAN AND REGIONAL PLANNING, 15 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Housing Cost Burdens: When does a house cost too much?  
During the Spring 2015 PDA, Prof. Anthony made considerable progress on several ongoing research projects. He also initiated research projects with new collaborators, conducted a field trip, participated in one national and one international conference, submitted one new grant application, and advised a graduate student group on a project for the City of Sioux City. The field trip enhanced his teaching in a Big Ideas course titled "People and the Environment" that over 70 freshmen honors students will take in the Fall semester. The grant also enhanced his teaching in the same course. Participation in the two conferences helped him get up to speed with advances in the fields of Land Use Planning and Housing & Community Development, and enabled him to be a more effective teacher of graduate courses in those areas of study. To the extent his students remain in the state after they get their degrees, the State of IA benefits from Prof. Anthony's PDA-enabled enhanced teaching performance. The student project that he supervised was aimed at developing a Housing Strategy for Sioux City which, when implemented, will increase the quality of life for Sioux City residents.

**BARRAGAN, ELOY, ASSOCIATE PROFESSOR, DANCE, 10 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Dance for the Camera  
Associate Professor Eloy Barragán used this PDA to expand and develop different aspects of dance-making through the study of screendance. This approach involves the study of movement through the eye of the camera, discovering the unlimited world of video and film. During the summer and fall of 2014, Barragán took the following courses: Screendance Theory, Film Production, Editing with Final Cut Pro X, Lighting for Video and Film, and Screendance Directed Research. Barragán completed the Graduate Screendance Certificate Program at the University of Utah in December 2014. He has already embraced these skills in his own creative processes and choreographic work. He will introduce these skills to his teaching, especially in Choreography IV, through the introduction of video/film composition in a narrative or montage form, film and video production, and editing using Final Cut Pro X. The final outcome of the PDA is to bring these skills to his students of the University of Iowa. He will introduce dance for the camera concepts to both undergraduate and graduate students.

**BECK, MARGARET, ASSOCIATE PROFESSOR, ANTHROPOLOGY, 8 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Pottery from Picuris Pueblo, 1600-1696

During her Professional Development Assignment in Fall 2014, Professor Beck analyzed seventeenth-century pottery from western Kansas and northern New Mexico, characterizing the manufacturing techniques and raw materials using petrographic analysis. The purpose was to better identify and describe red-slipped pottery made in Kansas with local materials but using techniques from the Pueblos of the northern Rio Grande area of New Mexico. This pottery is one line of evidence for the arrival of Puebloan refugees in this part of the Great Plains, people fleeing domination and violence brought by Spanish colonization and subsequent conflicts. Beck also substantially revised and resubmitted a National Science Foundation grant that, if successful, would fund future ceramic research in a different time and place in North America: Hopewell groups (200 BC – AD 400) in the Kansas City area. The PDA produced data for two journal articles and conference papers and new material for Professor Beck's courses, public outreach efforts, and student research projects. It has also contributed to maintaining her future research (and similar contributions to courses, public outreach, and student research).

**BECKERMANN, CHRISTOPH, PROFESSOR, MECHANICAL AND INDUSTRIAL ENGINEERING, 28 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Integrated Computational Materials Engineering for Castings

Integrated Computational Materials Engineering (ICME) is an emerging discipline that aims to accelerate materials development and unify design and manufacturing. Developing ICME is a grand challenge that could provide significant economic benefit and accelerate innovation in the engineering of materials and manufactured products. During the Professional Development Assignment (PDA), Professor Beckermann developed and validated a new ICME framework for metal castings. The work has resulted in new collaborations and research projects with industry and government agencies interested in ICME. The exposure of University of Iowa engineering students to ICME concepts will benefit their future careers.

**BENNETT, JEFFREY A., ASSOCIATE PROFESSOR, COMMUNICATION STUDIES, 6 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Critical Conditions: Diabetes and the Management of the Human Body

Professor Bennett completed two chapters of his forthcoming book "Critical Conditions: Diabetes and the Management of the Human Body." This work explores how the concept of "management" shapes public understandings of diabetes, its effects, and our ability to combat its consequences. The first chapter studies the rhetoric of the type-one diabetes advocacy group JDRF (formerly the Juvenile Diabetes Research Foundation). The second chapter looks to the widespread analogy between HIV and diabetes and the complex cultural insinuations about each disease. As a result of this second chapter, Professor Bennett was also able to begin a new project about the HIV-prevention pill Truvada. The PDA also provided Professor Bennett the opportunity to produce new materials for his undergraduate course "Gender, Sexuality, and the Media," as well as his graduate course "Rhetoric and the Body." The diabetes work is especially pertinent to the citizens of Iowa, where diabetes rates are increasing. The Iowa Department of Public Health reports that about 42% of all Iowans have diabetes or pre-diabetes, a rate that has doubled since 1991.

**BHATTI, M. A., PROFESSOR, CIVIL-ENVIRONMENTAL ENGINEERING, 35 YEARS OF SERVICE, HALF TIME FOR ONE YEAR**

*Title:* Development of a book on the Practical Methods and Concepts in Structural and Mechanical Vibrations

For the past several years Professor Bhatti has been working on a set of class notes for the Fundamentals of Vibrations course that is taught every year to advanced undergraduate and graduate students in the Civil and Mechanical Engineering programs. His goal in these class notes is to strike an appropriate balance between the theory, generality, and the practical applications of the methods for analysis of structural and mechanical vibrations. He requested this professional development award (PDA) to allow him time to refine these class notes so that a book proposal can be presented to a major publisher. He is happy to report that he was able to accomplish this goal. The entire set of notes was thoroughly revised into a book form consisting of 11 chapters. Out of these, 10 chapters are essentially complete and one chapter remains to be written. He is also working on developing a book publishing proposal that he plans to submit to a few publishers over the next few weeks.

**BORK, ROBERT, PROFESSOR, ART AND ART HISTORY, 17 YEARS OF SERVICE, FALL SEMESTER**

*Title:* The Untold Story of Gothic Architecture's Demise

Professor Bork spent the 2014-2015 academic year as the Samuel H. Kress Senior Fellow at the Center for Advanced Study in the Visual Arts, a research institute within the National Gallery of Art. He spent most of his fellowship time drafting the manuscript for a book examining the demise of Gothic architecture in the Renaissance; he wrote over 130,000 words, or roughly three quarters of the manuscript, and he expects to finish the rest by the end of 2015. In addition, he gave five talks, completed an article and a book review, and began to develop a new project exploring the geometry of late medieval and Renaissance paintings. All of these projects increase his visibility and the reputation of the University of Iowa. Bork's book project, which he will pursue this coming year with the aid of an ICRU student, directly informs his teaching. His research serves society by illuminating the nature of late medieval and Renaissance art and civilization, which can give students and citizens a valuable perspective on both world history and current events.

**BROWN, MATTHEW P., ASSOCIATE PROFESSOR, ENGLISH, 14 YEARS OF SERVICE, FALL SEMESTER**

*Title:* The Novel and the Blank: Textual Instruments in the Age of Franklin

For his PDA, Professor Brown completed the second chapter of his current book project, 'The Novel and the Blank'. Entitled "The Christian Century," the chapter documents and interprets the surge in printing that accompanied the Great Awakening, the transatlantic religious revivals of the 1730s and 1740s. Religious printing—vital to the rest of the eighteenth century—shows the complexity of an era we now call the "secular" Enlightenment. As both freethinking skeptic and tolerant, pragmatic Deist, Ben Franklin's avid work printing the revivals (through sermons, reportage, and biographies—many in vendible single-sheet formats) exposes the interaction of "Enlightened" and devout realms. Brown also collaborated on the second draft of a co-authored article with UI students on the British novelist Iris Murdoch, to be submitted this spring to PMLA. He composed a solicited book review for Common-place. He prepared new courses for UI undergraduates and graduate students, the former based on his Franklin research, the latter on a projected third monograph. The PDA work thus directly informs his teaching. The award has benefited the region by giving it a preeminent resident book specialist.

**BURER, SAMUEL, PROFESSOR, MANAGEMENT SCIENCES, 14 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Making Optimal Decisions under Severe Levels of Uncertainty

Professor Burer's project for the Professional Development Assignment (PDA) investigated how businesses, non-profit organizations, and individuals can make optimal decisions even when facing severe levels of uncertainty. The work spanned theoretical models, computer software, and real-world applications. Professor Burer collaborated with several Singapore researchers and separately with a professor in Italy, as well as with a Ph.D. student at the University of Iowa. Scholarly outputs included journal articles, software packages, and conference presentations, and Professor Burer incorporated lessons learned from his research into two courses at the University of Iowa at the undergraduate, graduate, and MBA levels. The outcomes of this PDA will also benefit the people of Iowa and beyond by providing new tools for dealing with uncertainty when making critical decisions.

**DILG, JOHN, PROFESSOR, ART AND ART HISTORY, 40 YEARS OF SERVICE, FALL SEMESTER**

*Title:* A Contemporary Hybrid of 19th Century Gothic and the Aesthetic of Japanese Rinpa

John Dilg completed seven paintings based on his recent interest in the relationship of the gothic to the aesthetic of Japanese Rinpa. His work is structured in narration and its exploration of a Rinpa aesthetic, in which natural motifs are codified as graphic icons, is in conversation with the predominantly abstract nature of current (contemporary) painting. Several of these paintings were shown in a late-fall 2014 exhibition at Jeff Bailey Gallery, in Hudson, NY. Certain works will also be shown later in 2015, as part of group shows in Atlanta, GA, and Boston, MA. One painting was also included in the University of Iowa Faculty Show opening at the Figge Museum in Davenport, IA, in April 2015. Notes on the natural design elements gathered during this project will be used to foster new course additions for Painting I and Painting II undergraduate courses. The visually gothic, personal narratives and the graphic abbreviations of Midwest natural motifs in these paintings may be seen as a contribution to the identity of lives on the land of the prairie and in the State of Iowa.

**DOORN, JONATHAN A., ASSOCIATE PROFESSOR, PHARMACEUTICAL SCIENCES AND EXPERIMENTAL THERAPEUTICS, 11 YEARS OF SERVICE, FALL SEMESTER**

*Title:* The Role of Pesticides in Neurodegenerative Disease and Neurotoxicity

During the Fall Semester of 2014, Professor Jonathan Doorn engaged in work during his Professional Development Assignment to advance the research and teaching missions of the University of Iowa. He was awarded a Fellowship via the University of Iowa Obermann Center and spent time as a Fellow in Residence, which provided an exceptional workspace and input/feedback from other University scholars during this period. Professor Doorn performed research related to pesticide neurotoxicity and neurodegenerative disease (Parkinson's Disease) and wrote two major grant applications, one for the National Institutes of Health and one other for the National Science Foundation, as well as two pilot grants. He was able to foster new collaborations that will advance his research and result in further grant applications and scientific publications. Such work is important for Parkinson's disease to elucidate new and novel drug targets and identify biomarkers for earlier disease diagnosis. In addition, new information learned will directly benefit Professor Doorn's teaching efforts in professional and graduate programs at the University of Iowa.

**DUYS, DAVID K., ASSOCIATE PROFESSOR, REHABILITATION & COUNSELOR EDUCATION, 10 YEARS OF SERVICE, FALL SEMESTER**

*Title:* The Development of a Tablet-Based Career Exploration Application

Professor Duys used his Fall 2014 PDA to develop a new application (software prototype) for the iPad. The app is designed to help high school and college students explore their career interests, barriers, and competing ambitions. The beta version of the application was successfully completed in November 2014 and tested on the iPad 2 and the iPad Air 2 for compatibility across operating systems and hardware platforms. The app will be used in counselor education classes to help future counselors integrate technology with career development interventions. As planned in the proposal, the application will become publicly available later in 2015 and will be free of charge for Iowa school counselors and college student development professionals. Results obtained from the instrument will allow researchers to explore relationships between three variables (interests, barriers, and competing ambitions) simultaneously. The application is an extension of Professor Duys' efforts to integrate career development theories and will serve as a method for expanding technology-based counseling interventions in the future.

**FOLSOM, ED, PROFESSOR, ENGLISH, 39 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Walt Whitman's Leaves of Grass: The Biography of a Book; The Trajectory of a Poem

Professor Folsom completed one book (on Walt Whitman's "Song of Myself") and made substantial progress on a second (a biography of Whitman's Leaves of Grass), writing and publishing four essays that will form parts of chapters of that second book. He also completed work on one NHPRC grant dealing with Whitman's late correspondence and received a second NHPRC grant to continue that work, which is feeding into the book project. Folsom has made Iowa one of the major centers of Whitman studies, and these projects continue to illuminate Whitman's work for Iowa students, Iowa readers in general, and the larger national and international Whitman communities. Folsom teaches Whitman's work at the undergraduate and graduate levels, co-directs the online Walt Whitman Archive, edits the international journal of record for Whitman studies, and edits the Whitman Series at the University of Iowa Press. These two new books will be a culmination of his decades of work on Whitman and will enhance his teaching of Whitman to Iowa students and broaden the understanding of Whitman's work for an international audience.

**FOX, CLAIRE F., PROFESSOR, ENGLISH, 14 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Intangibles: Cultural Development in the Americas

During her spring 2015 Professional Development Assignment, Professor Claire Fox undertook basic research toward her next book project. She prepared two articles for submission in fall 2015, and she developed a four-year plan for future research and grant proposals. Professor Fox continued to work on two existing projects, an edited anthology titled The Latino Midwest Reader and a Spanish-language edition of her 2013 book Making Art Pan American. She delivered three public lectures, and she submitted proposals for two conferences and two public lectures scheduled during the 2015-2016 academic year. She revised and published one existing syllabus, developed a proposal for an honors seminar in English, and began gathering sources for two future courses on postcolonial literatures and visual culture, respectively. She mentored an ICRU fellow in English, and she worked with seven graduate students on exams, theses, and other milestones. She carried out administrative duties in the Departments of Spanish and Portuguese and English, and she directed the Latina/o Studies minor.

**GENG, MAXWELL L., PROFESSOR, CHEMISTRY, 20 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Superresolution Imaging of Fast Molecular Motions

In this Professional Development Assignment, Professor Geng has established the fundamental principles for a new imaging method for probing molecular details in nanostructures. He has advanced the theoretical understanding of the heterogeneous nature of nanoporous particles and devised novel methods for purifying the particles into more uniform populations for improved chemical and biomedical applications. The high-resolution confocal microscopy developed in the PDA allows the assessment of material properties and fast molecular processes occurring in nanopores. Professor Geng is writing two research articles describing his new findings and preparing a research grant proposal. Professor Geng is integrating the new insights in nanomaterial properties into his teaching in undergraduate and graduate courses to enrich student education at the University. Applying the insights on nanotransport, Professor Geng is developing novel vehicles for delivering drug molecules to targeted disease sites in human body, which will enhance the economic environment in the State of Iowa and improve human health.

**GETZ, CHRISTINE, PROFESSOR, MUSIC, 16 YEARS OF SERVICE, FALL SEMESTER**

*Title:* A Critical Edition with Historical Introduction and Commentary of Andrea Cima's IL Secondo Libro Delli Concerti (1627)

Prof Getz conducted archival research in Milan, Italy, and edited music contained in Andrea Cima's IL Secondo Libro Delli Concerti (1627) with the goal of preparing an edition of it for the series 'Recent Researches in Music of the Baroque Era' (A-R Editions). The proposal for the edition is now under review. Professor Getz further prepared two grant proposals for a project exploring the influence of early modern travel writing on the music prints issued by the Milanese bibliophile and printer Lomazzo. Because she discovered new archival material on Lomazzo during the PDA, Professor Getz intends to reshape this project with an eye towards how Lomazzo's firm and the prints issued by it underpinned Milan's social fabric, local economy, and international business relations. Professor Getz also prepared final edits on an invited book chapter and a forthcoming article. Professor Getz teaches the paleographic and philological skills required for her research regularly in two graduate courses unique to the comprehensive program in the School of Music at Iowa. The PDA allowed her to explore new avenues that will sustain her future work as a leading scholar of music in early modern Milan.

**GIBLIN, JAMES L., PROFESSOR, HISTORY, 29 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Tracing the Roots of Democratic Culture in Africa: A Story of Dissidence from Tanzania

Professor James Giblin worked on a book about the political history of Tanzania in the 1950s and 1960s. It reveals an almost forgotten episode of political dissidence. Its purpose is to question the common view that African societies preferred authoritarian forms of government. Professor Giblin conducted research with both written and oral sources while spending part of the Professional Development Assignment in Tanzania. In Tanzania he travelled extensively to conduct interviews, as the book is based primarily upon oral sources. He also wrote three draft chapters. In addition, he wrote two journal articles and a book chapter during the PDA. The research has given Professor Giblin new perspectives on the modern political history of Africa. In addition, his work with oral history has enhanced his appreciation of the difficulties involved in oral history research. He has gained many examples from his own work which will enliven his graduate and undergraduate teaching about oral history. In these ways, the research strengthens the capacity of the University of Iowa to educate students about Africa and International Studies.

**GILOTTI, JANE A., PROFESSOR, EARTH AND ENVIRONMENTAL SCIENCES, 16 YEARS OF SERVICE, HALF TIME FOR ONE YEAR**

*Title:* Fluid and Melt Evolution During Ultrahigh-Pressure Metamorphism of Continental Crust  
Prof. Gilotti used her Professional Development Assignment (PDA) to further her understanding of "Fluid and Melt Evolution during Ultrahigh-Pressure Metamorphism of Continental Crust." The PDA began by finishing a paper with Prof. Helen Lang (West Virginia University) demonstrating that melting in the NE Greenland rocks started after decompression from UHP conditions, and therefore cannot be the trigger for exhumation from great depths. Gilotti spent 8 months as a guest researcher at the University of Torino, Italy working with Dr. Simona Ferrando, an expert on fluid and melt inclusions in minerals on the NE Greenland rocks. She visited Prof. Hans Massonne (Stuttgart, Germany) to discuss these rocks and collect mineral chemistry and zoning information with the electron microprobe. Results were used to help mentor her Ph.D. student. Gilotti also visited a collaborator in Erlangen, Germany to discuss results of their fieldwork on Ellesmere Island (Nunavut, Canada) during summer 2014, which form the basis of a proposal submitted to the NSF Tectonics program. She spent a significant part of the PDA writing up 3 recent student projects for publication.

**GOLZ, SABINE I., ASSOCIATE PROFESSOR, GERMAN, 28 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Documentary Film "The Cantor of Swabia"  
During her Professional Development Assignment, Assoc. Prof. Sabine Gözl edited her feature-length documentary film: "The Cantor of Swabia: Music und Resistance in Nazi Germany." The film chronicles the life and work of Richard Gözl, a visionary church musician and theologian who transformed German church music in the 20th century. He also helped save the lives of Jews fleeing Nazi persecution and is commemorated for this in Yad Vashem, Berlin, and in the Holocaust Museum in Washington. The film brings the story of this historically significant figure to national and international audiences for the first time. It will be suitable for classroom use for a range of courses teaching students about 20th-century European history, music, and thought. The film also contributes to current discussions about the relation of ethics, religion, politics, and critical thinking, emphasizing the indispensable importance of artistic practices for society. The film premiered under its German title, "Richard Gözl -- Singen und Widerstehen," in Stuttgart, Germany, in June 2015.

**HAES, AMANDA J., ASSOCIATE PROFESSOR, CHEMISTRY, 9 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Improving the Effectiveness of Disease Treatment Options using Nanotechnology  
Professor Haes used this PDA to establish new collaborations in nanotechnology and nanomedicine. Collaborations were established with faculty and students in the Departments of Anatomy and Cell Biology, Chemistry, Civil and Environmental Engineering, Internal Medicine, and Prosthodontics. These collaborative efforts resulted in the submission of one manuscript (under review), one internal proposal (funded through the Internal Funding Initiative of the OVPED), one white paper (pending), and proposals to both the National Science Foundation and National Institutes of Health (pending). Eight graduate students and one post-doctoral associate benefited. In addition to these efforts at the University of Iowa, Professor Haes also co-chaired a workshop with Professor Vicki Grassian on the fundamental challenges associated with the environmental health and safety of nanomaterials. This event was held in association with the 2014 Sustainable Nanotechnology Organization annual meeting in Boston and involved ~20 interdisciplinary participants from across the country. These scholarship efforts have implications for the citizens of the State of Iowa as well as society in general.

**HAYES, JOY, ASSOCIATE PROFESSOR, COMMUNICATION STUDIES, 21 YEARS OF SERVICE, FALL SEMESTER**

*Title:* New Media in Historical Perspective: Rethinking U.S. Radio Audiences and Institutions  
Professor Hayes conducted research on the history and current practice of educational broadcasting in the U.S. and Mexico. Drawing on archival materials from the National Archives and Library of Congress, she investigated how New Deal government agencies and commercial networks cooperated to produce educational radio programs in the late 1930s. She also began research on the political backlash against New Deal broadcasting initiated by the Special House Committee on Un-American Activities beginning in 1938. Finally, she analyzed data from field research conducted in Jalisco, Mexico on community radio broadcasting in the 2000s. She organized a panel of papers on educational broadcasting that was accepted for presentation at an international conference. She also drafted two papers to be submitted for publication later this year. The results of her research will also be incorporated into the following courses: COMM:4183 Networking America: The Cultural History of Broadcasting and Comm:4152 Latin American Media.

**HETTMANSPERGER, SUE E., PROFESSOR, ART AND ART HISTORY, 38 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* "Iterations, A Series of Paintings"

"Iterations, a Series of Paintings" Contemporary painting is a continually reinvented fictive space in art, seeking to extend and experiment with what is pictorially possible. Through the incorporation of digital image manipulation, collage, and repeated iterations of form, Hettmanspergers' paintings visually symbolize our complicated hybrid twenty-first century world. As an artist-painter, she combines imagery from the internal human body with botanical form, manufactured objects, and digital distortion in order to evoke contemplation of environmental concerns. Emblematic visual configurations in her paintings present the disjunctive ethos of our time, where boundaries between organisms are increasingly blurred and new visual territory is formed. The series of paintings she created embody the themes of cultural production relative to the environment, as some of the most vexing problems society faces in an uncertain future. This Professional Development Assignment resulted in a painting series to be exhibited in New York and Iowa, serving as a teaching model for undergraduate and graduate students, and benefitting the College by fostering continued excellence in the arts.

**HILL, LENA M., ASSOCIATE PROFESSOR, ENGLISH, 9 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Writing for Rights

During her PDA, Professor Hill completed a new article, "Performing Political Responsibility: Ralph and Fanny Ellison's Appeal to Visual Arts," that is forthcoming in the fall 2015 journal American Studies. She received reader reports for the manuscript, Invisible Hawkeyes: Iowa, Integration, and the Ellisons, during spring 2015. She completed revisions of the introduction and chapter she authored, and she co-edited chapters submitted by contributors. Professor Hill completed final edits for an article that will appear this spring: "The Politics of Fatherhood in Three Days Before the Shooting....." She conducted new research for two book projects: Jim Crow in America: A Historical Exploration of Literature and Writing for Rights. Professor Hill continues to integrate her research into both her undergraduate and graduate classes at UI. Her newest article and essay collection serve Iowa by recovering and publishing Iowa's rich history of leading the nation in welcoming African Americans to higher education.

**HILL, MICHAEL, ASSOCIATE PROFESSOR, ENGLISH, 9 YEARS OF SERVICE, FALL SEMESTER**

*Title:* A Little Child Shall Lead Them: Adolescence in African American Novels, 1941-2008

During his Professional Development Assignment, Professor Hill drafted one chapter of his book on adolescence in African American novels and completed research for another. In addition to composing chapter two, which focused on texts published between 1950 and 1959, he outlined and started writing chapter one, which looks at works that appeared between 1941 and 1950. For this chapter, he explored the sociological studies of Herbert Marcuse, Alfred Kinsey, and E. Franklin Frazier and the cultural theory of Lauren Berlant, Michael Warner, and Patricia Hill Collins. Professor Hill's activities will help him to revamp a course on youth in American literature. He will teach this new class in Fall 2015. In addition to working on his single-author book project, Professor Hill and a co-editor submitted an edited collection of critical essays and alumni testimonials - entitled 'Invisible Hawkeyes: Iowa, Integration, and the Ellisons' - to the University of Iowa Press. Looking at the experiences of black students at the UI from the 1930s to the 1960s, this collection will contribute to a fuller understanding of how the public university in the Midwest impacted the Civil Rights Movement.

**HOLLINGWORTH, ANDREW R., PROFESSOR, PSYCHOLOGY, 13 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Cognitive Neuroscience Techniques for the Study of Vision, Memory, and Attention

Professor Hollingworth used the PDA to gain expertise in research methods that measure electrical activity in the brain (EEG). EEG recording can be used to track instantaneous changes in voltage caused by neural activity. Professor Hollingworth conducted in-depth background scholarship concerning the basic technique. He participated in an extensive training program for conducting this type of research. He installed the equipment needed to conduct EEG recording as part of a new shared facility in the Department of Psychological and Brain Sciences. He designed a series of experiments to be conducted using the technique, and he collected pilot data confirming their validity. The PDA allowed Dr. Hollingworth to remain at the cutting edge of his field. It provided the foundation for research that will contribute to society in general by furthering our basic understanding of human brain function. In addition, the work will enhance Dr. Hollingworth's teaching through the inclusion of additional neuroscience content. Finally, the work has enhanced the training of graduate students in Dr. Hollingworth's laboratory by expanding their set of available research techniques.

**HOUSTON, DOUGLAS W., ASSOCIATE PROFESSOR, BIOLOGY, 11 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Mechanisms of Axis Formation and Regeneration

Professor Houston was granted professional development assignment for the Spring semester of 2015. The major objective was to travel and work for several months at the world-renown marine station in Villefranche-sur-Mer, France and take advantage of their unique expertise in the developmental biology of marine organisms. In particular, Prof. Houston successfully learned the husbandry and experimentation of jellyfish embryos and presented several international seminars and lectures on his work. Jellyfish embryo development is similar to other animals and will synergize with Houston's work on frogs. They also exhibit remarkable powers of tissue and whole body regeneration and will thus serve as a model for regenerative medicine in the future. Prof. Houston will also incorporate work with jellyfish into his Developmental Biology Lab course, which will expose Iowa students to a unique hands-on model of embryo development and regenerative medicine. Prof. Houston also continued his funded and collaborative projects, publishing several papers and a book chapter on vertebrate body patterning and is co-investigator on a grant from the Iowa Space Consortium that was awarded during the PDA.

**JANZ, KATHLEEN F., PROFESSOR, HEALTH & HUMAN PHYSIOLOGY, 24 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Children's Physical Activity Pathways and Their Relationship to Young Adult Bone Strength

There are substantial gaps in our knowledge as to when, how, and how much activity is optimal for bone and metabolic health. Difficulties in accurately measuring activity and imaging body composition are major factors in the lack of understanding of the dose-response relationships between activity and health. During her PDA, Professor Janz worked with colleagues to create trajectories of objectively measured activity from childhood through adolescence. These trajectories were used to describe the dose and pattern of activity that predict strong bones and obesity during young adulthood. This work has implications for reducing osteoporotic fractures in later life since peak bone mass occurs in young adulthood and bone is progressively lost thereafter. In the U.S., over 1.5 million osteoporotic fractures occur yearly which result in 18 billion dollars in direct healthcare costs. Obesity is also a significant public health problem that affects 33% of U.S. adults with an estimated cost equal to 21% of U.S. national health expenditures. This PDA contributed to Professor Janz's teaching responsibilities in courses addressing physical activity and health outcomes.

**JAY, LAURENT O., PROFESSOR, MATHEMATICS, 17 YEARS OF SERVICE, HALF TIME FOR ONE YEAR**

*Title:* Theory and numerical solution of differential equations

Professor Jay had various activities during his Professional Development Assignment beside his DGS duties. He worked on a textbook on the theory and numerical solution of differential equations. Such equations can model a multitude of phenomena, processes, and applications in science and engineering. For example differential equations are used to model the stream flow in river networks and Professor Jay was involved in the development of new numerical methods routinely used at the Iowa Flood Center for the prediction of floods in the State of Iowa. Professor Jay participated in the writing of a NSF grant proposal on Enriched Doctoral Training in the Mathematical Sciences. He gave talks and worked on several research papers. He developed new hybrid methods for differential equations, having the ability to treat each part of the equations with a different scheme more adapted to their nature. He devised new singly implicit Runge-Kutta methods with low computational cost for the solution of stiff differential equations. He also worked on low order symplectic methods for nonautonomous Hamiltonian systems and on new schemes for fractional diffusion-wave equations.

**KETTERER, ROBERT C., PROFESSOR, CLASSICS, 27 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Bridging the Hellespont: Ancient Kings and Modern Sultans in European Opera, 1650-1830.

Professor Ketterer did research in Fall 2014 as a Newberry Library Fellow on an interdisciplinary book that examines how Baroque operas used stories from Greek and Roman history to reflect the contemporary interactions between Europe and the Ottoman Empire. The project addresses historical questions in East-West relations that continue to impact us today. The outcomes for his research were: 1) new research for the book; 2) three conference papers that will lead to a book chapters, and 3) an expression of interest in the book project from Ashgate Press. The research has also supported two of Professor Ketterer's undergraduate courses and a fall 2015 graduate seminar on the "eastern" tragedies by Aeschylus. It also supports his community outreach work through the UI Opera Studies Forum and the UI Senior College. Professor Ketterer also worked as local organizer of an academic conference that took place at the UI in Spring 2015, which included an instructional component for the UI Latin classes.

**KHANDELWAL, MEENA R., ASSOCIATE PROFESSOR, ANTHROPOLOGY, 12 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Cooking with Fire: Feminist Anthropology, Engineering and Solar Cookers

Professor Khandelwal focused on researching and writing Chopping Wood and Cooking with Fire and submitted two grant proposals related to this book project. She won the Fulbright-Hays award to take 12 students and faculty to India and submitted a book proposal to NEH to complete this project. Billions of people in the world cook with biofuel. Sickness caused by smoke, along with increasing scarcity of firewood, exemplify the 'slow violence' that harms women and children. In India, experts have been trying to get rural women to 'modernize' their cook-stoves for decades, but with little success. This book about deforestation, culture, livelihood and development in southern Rajasthan engages a broad public on the question: What should be done about the plight of these women and by whom? Its vivid account of village life in a seemingly remote part of the world speaks to vexing problems of global concern and argues for working across the sciences, social science and humanities. This book is directly linked to the new 'big ideas' course People and Environment, targeting first-year Iowa students, that compares Iowa and Rajasthan.

**KLETZING, CRAIG, PROFESSOR, PHYSICS AND ASTRONOMY, 19 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Study of Magnetospheric Science Using NASA Spacecraft

For his Professional Development Assignment (PDA), Prof. Craig Kletzing worked as a lead investigator on three NASA-funded space missions: the Van Allen Probes mission, the Magnetospheric Multiscale Mission (MMS), and the Cusp Alfvén and Plasma Electrodynamics Rocket (CAPER) mission. For the Van Allen Probes, he authored several published papers and a book chapter. MMS and CAPER were to launch in Fall of 2014, but MMS was delayed by NASA and CAPER was unable to launch due to weather. However, very useful work was done on both projects. For MMS, he wrote part of another book chapter and made preparations for launch. For CAPER, he spent 26 days in Norway for launch operations. He will return to Norway next year for a new launch window. Prof. Kletzing's PDA work has contributed to the UI's prominence in space science and the state of Iowa's leadership role in this type of research. The three projects supported two graduate students with external funding, and he uses examples from these missions in his large introductory physics classes to motivate students and to show practical applications of the material.

**K R I S H N A M U R T H Y , M U T H U K R I S H N A N , A S S O C I A T E PROFESSOR, MATHEMATICS, 9 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Converse Theorems

Professor Krishnamurthy's PDA was related to the study of the so called "converse theorems" in number theory. It is important to obtain such theorems using as little analytic information as possible. The proposed activity was aimed at generalizing Professor Krishnamurthy's earlier work on converse theorems to the higher rank situation. In this regard, Professor Krishnamurthy, in a joint work with Professor Andrew Booker, obtained a higher rank version of the converse theorem and the work is ready to be submitted for publication. This in turn has opened up several new lines of investigation that Professor Krishnamurthy strongly believes will not only result in additional publications but also benefit graduate students wanting to pursue research in number theory. Moreover, the above mentioned work resulted in two invited presentations for Professor Krishnamurthy during the award period, one at the Tate Institute of Fundamental Research, Mumbai, and the other at the Indian Institute of Technology, Mumbai, India.

**KROKHMAL, PAVLO, ASSOCIATE PROFESSOR, MECHANICAL AND INDUSTRIAL ENGINEERING, 10 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Advanced Optimization Methods for Design of Mechanical Systems and Materials

Research activities of this Professional Development Assignment (PDA) have been focused on development of new theoretical and computational methods for design and optimization of complex engineering and industrial systems. In particular, Professor Krokmal has developed computational methods for risk-averse optimization in networked systems under the presence of uncertainties and risks. In addition, novel methods have been proposed for optimization of composite materials with complex microstructures. Four research papers have been submitted to peer-refereed technical journals, and several invited seminars and conference talks have been given. The results and outcomes of this PDA will allow Professor Krokmal to introduce new topics on risk management in both undergraduate and graduate courses that he teaches. In addition, a new course on application of optimization methods in engineering systems and PDE-constrained optimization is under development. This PDA will benefit the State of Iowa and society in general by enabling more effective methods and policies for management and control of engineering and industrial systems that are influenced by various risk factors.

**LANG, CORNELIA, ASSOCIATE PROFESSOR, PHYSICS AND ASTRONOMY, 13 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Observing the Galaxy from Down Under: Uncovering the Magnetic Field Structure in the Galactic Center

Professor Cornelia Lang spent the semester as a Visiting Scholar in the School of Maths and Physics at the University of Tasmania (U Tas). She interacted daily with a group of astronomers and physicists, and their students. In addition to productive scientific discussions, Professor Lang gave several seminars at U Tas and an invited colloquium at ANU in Canberra. She also attended an international astrophysics conference in Sydney and presented her work on magnetic fields in the central regions of our Milky Way Galaxy. Professor Lang and Australian collaborators wrote a successful observing proposal to carry out new, state-of-the-art observations on the magnetic field in the Galactic center, which will be carried out during 2015. These observations will provide an important way to understand the magnetic complexity in this region. In addition to her research, Professor Lang also gave a very well attended public lecture at U Tas, and worked on a teaching collaboration project with the U Tas "Foundation Studies" program (courses for incoming international students). Her research and teaching experiences in Australia will provide value insight for students and colleagues at the University of Iowa.

**LANG, JOSEPH B., PROFESSOR, STATISTICS & ACTUARIAL SCIENCE, 23 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Improved Estimation of Causal Effects

Professor Lang carried out research on statistical methods that are designed to improve estimation of causal effects using data from comparative designed experiments. A first paper shows that testing for the presence of causal effects is much more sensitive to assumptions than previously thought. A second paper outlines three basic approaches to carrying out improved statistical inference about a causal effect; this paper develops novel tests for detecting effects and gives explicit assumptions for when these tests are applicable. A third paper tackles a related problem of statistical prediction. As examples, research using methods developed in these papers could lead to improved assessments of intervention programs and the improved prediction of industrial process parameters. His work has opened new avenues of research and will enhance both his undergraduate and graduate teaching.

**MCCLELLAND, BILL C., PROFESSOR, EARTH AND ENVIRONMENTAL SCIENCES, 7 YEARS OF SERVICE, FALL SEMESTER**

*Title:* U-Pb Geochronology Applied to Ultrahigh-Pressure Metamorphism and Tectonic Evolution of the Arctic

Professor McClelland's primary efforts during his Professional Development Assignment focused on preparation of two comprehensive review papers describing: (1) current methods to determine the timing of subducting continental crust to depths of over 100 kilometers and (2) new tectonic models for the geologic evolution of the circum-Arctic region. Anticipated completion of the review papers is 6 to 12 months beyond the current report date. Seven journal articles were published or submitted; one is near completion. Professor McClelland also upgraded the sample processing facility in Trowbridge Hall to accommodate increased throughput. Assistant Professor Finzel was trained in the analytical methods and UI protocol for the lab. Research material will be incorporated into teaching material for EES 5820, guest lectures on geochronology presented in EES:5530, and a new graduate level offering on using zircon geochronology in tectonics. A new project was initiated to examine the age and chemistry of material used in stone axes in the Western Alps.

**MENDEZ, ADRIANA, PROFESSOR, SPANISH AND PORTUGUESE, 30 YEARS OF SERVICE, FALL SEMESTER**

*Title:* From Paradise to Diaspora: Natural History in the Americas

Professor Mendez's PDA was spent refocusing the project's geographical sweep. Now titled "From Paradise to Diaspora: Picturing Cuba in Travel, Narrative, and Art," Professor Mendez concluded chapter II, "Picturing Cuba: Romantic Ecology in Gertrudis Gómez de Avellaneda's Sab (1841)," an essay submitted to a critical anthology forthcoming from the University of Minnesota Press. The Amazon portion is now conceived as a separate article. "On the Trail with Humboldt: Mapping the Orinoco as Transnational Space" was presented at the "Rethinking Environmental Consciousness" conference held in early December at Mid-Sweden University. It will appear in an interdisciplinary volume on "Mapping Nature across the Americas," co-edited by the directors of last summer's NEH Institute, published by the University of Chicago Press. In Havana Professor Mendez did research at the Fundación Antonio Núñez Jiménez for chapter I. An essay, "Re-enacting the Voyage of 'Discovery': Science, Nature, and the Politics of Sea-Faring," was presented in May at the University of London's Institute of Latin American Studies.

**MENTZER, RAYMOND A., PROFESSOR, RELIGIOUS STUDIES, 14 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Material Culture and Spiritual Practices among French Protestants

Professor Mentzer's PDA in Fall 2014 focused on writing a journal article and eventual book chapter on the place of material artifacts in the devotional and liturgical life of sixteenth- and seventeenth-century French Protestants. Though often characterized as iconoclastic, the members of the French Reformed Churches could hardly avoid material texts and objects in their religious activities. They designed churches as auditory spaces with a pulpit surrounded by benches for conduct of the sermon service. They created a token system to control access to the Lord's Supper. Above all they were meticulous record keepers, pioneering in the areas of vital statistics, financial accounts and records of the meetings of church councils. This last aspect of Reformed material culture is at the center of the research conducted while on the PDA. Why and how were the records kept? What was recorded? What was left out? What did these developments mean for the Protestant project to reform church and society? Professor Mentzer expects to publish an article in the next year and envisions completion of the book thereafter. His research will also enhance both his undergraduate and graduate teaching.

**MEURICE, YANNICK, PROFESSOR, PHYSICS AND ASTRONOMY, 25 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* New Directions in Computational High Energy Physics

Professor Meurice is a theoretical physicist working on strongly interacting elementary particles. Frequent visits at Fermilab have resulted in two significant publications: one providing the most precise estimate of the value of the weak transition between two specific quarks and another one predicting the energy distribution for a rare decay of a heavy quark. He has designed atomic physics systems behaving as theoretical models used in lattice gauge theory. Cold atom experimentalists are now trying to implement this proposal. He has developed new computational methods for lattice gauge theories reported in two articles submitted for publication. The research done during the PDA will provide new material for physics courses on computational physics, particle physics and quantum physics. The research has involved several graduate students, contributing significantly to their training and careers. The recent work and interactions with other researchers increases the visibility of the University of Iowa. Understanding fundamental interactions at the smallest accessible scales generally offers long term benefits for the State of Iowa and the society in general.

**MILLS, MARGARET H., PROFESSOR, ASIAN AND SLAVIC LANGUAGES AND LITERATURES, 26 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Talking with Our Doctors: A Cross-Cultural Analysis of Doctor-Patient Clinical Interviews in Russia

Spring 2015 allowed Mills to focus on her on-going research in Russian discourse analysis. Over the past decade she has compiled an extensive collection of tape-recorded Doctor - Patient interviews (30) from Moscow and St. Petersburg clinics. Providing written transcripts for those recordings (first in the original Russian, then a translated version into English) is extremely labor intensive. The most valuable outcome of the PDA is a new set of 12 transcribed Russian and 6 English translations. Her proposal outlined a volume of 12 essays (chapters) highlighting and featuring unique linguistic, cultural, and social aspects of Doctor - Patient interviews in Russian (as compared with similar medical settings in the US). She has completed four chapters (with full transcripts), providing critical new interpretations of Russian interviews. Initial discussions with publishers have been encouraging; each requesting a 50% complete manuscript. Mills has made good progress toward that halfway mark. The new essays and findings will contribute directly to Mills' bi-yearly course "Russian Health Care" and Advanced Russian classes at UI.

**MITCHELL, COLLEEN C., ASSOCIATE PROFESSOR, MATHEMATICS, 10 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Mathematical and Computational Modeling of the Cardiac Beta-Adrenergic Response

During this PDA, Professor Mitchell worked on mathematical and computational modeling of cardiac response to beta-adrenergic stimulation. The project resulted in the development of a new mathematical framework for exploring this and other bio-medical situations in which the combined actions of many independent "microdomains" can lead to surprising and previously mysterious clinical symptoms. The framework involves tracking of multidimensional probability distributions that describe the state of individual microdomains. In this case, the cardiac caveolae are described by their transmembrane voltage as well as the conformational state of embedded ion channels. By tracking this density as it changes in time, we can understand the caveolar contribution to action potential morphology, duration, and propagation speed. This has led to a novel understanding of the mechanisms for a particular class of cardiac arrhythmias known as LQTS-9. This work has also been incorporated into a new modeling module for a course in Mathematical Biology.

**MORDKOFF, JONATHAN T., ASSOCIATE PROFESSOR, PSYCHOLOGY, 8 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* A Real-world Test of a Cognitive Explanation of the Effects of Distracted Driving

Distracted driving, such as driving while using a cell-phone, is responsible for more than 5000 deaths and 400,000 injuries in the U.S. every year. Attempts to reduce distracted driving by both legislation and education have not been successful. Professor Mordkoff's work takes a different approach, one that is based on our current understanding of visual information processing. The goal of this work is to reduce the effects of distraction, given that attempts to eliminate the distractions, themselves, have not yet succeeded. However, this new approach requires that researchers be able to measure and quantify the effects of distraction on specific cognitive processes, such as visual working memory, and to do so while research participants use a commonly available driving simulator. During his Professional Development Assignment, Professor Mordkoff developed three different procedures for doing this. The method that appears the most promising involves presenting the stimuli for the memory task on the same display as the simulated dash-board of the car being driven. Presenting the stimuli on the main screen or on a separate display is not recommended.

**NGUYEN, HIEN M., ASSOCIATE PROFESSOR, CHEMISTRY, 6 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Development of New Strategies for Medical Imaging

Dr. Nguyen discovered a novel and operationally simple method for the rapid, mild, and efficient incorporation of fluoride-18 into carbon systems of organic molecules. This new technology is mediated by a minuscule amount of a commercially available, inexpensive, and air-stable transition-metal catalyst. The fluorine-18 incorporation reaction takes places in 5–10 minutes at room temperature, and the desired products are isolated in high yield and with defined arrangement. Completion and optimization of this method would allow biomedical and pharmaceutical researchers to synthesize a variety of fluorine-18-containing targets for potential development of PET scans to detect various neurological diseases. Since this project is at the interface of biomedical imaging and transition-metal catalysis, it provides multidisciplinary training for graduate and undergraduate students. There are two graduate and two undergraduate students working on this imaging project. This direct interaction will allow students to gain benefits in experimental and theoretical knowledge. In addition, it helps them to gain communication and mentoring skills essential for their future career.

**\* ONWUACHI-WILLIG, ANGELA I., PROFESSOR, LAW, 5 YEARS OF SERVICE, FALL SEMESTER**

*Title:* According To Our Hearts: Lessons on Race, Family, and Law From Rhinelander V. Rhinelander

During her PDA, Professor Onwuachi-Willig finished co-authoring two law review articles. One was published in the UCLA Law Review, and the other, an invited symposium piece, was published in the Florida State University Law Review. She also wrote about 100 rough pages of a sociolegal book manuscript tentatively titled "The Trauma of Trayvon." She wrote and gave three separate invited lectures at Indiana University-Bloomington, Drake, and University of Southern California, and she presented an article draft, per invitation, at three faculty workshops at Yale, University of Texas, and Rutgers-Camden. These talks all showcased the University and the State of Iowa. One of these lectures directly benefited students at another Iowa university, Drake, and the public in Des Moines, who could attend the lecture for free. She also began to plan a national civil rights conference with two collaborators at Duke Law School, which will take place on their campus. All of these activities have enriched her understanding of Antidiscrimination Law, Family Law, and Critical Race Theory, which will directly benefit University of Iowa students.

**PARK, SOONHYE, ASSOCIATE PROFESSOR, TEACHING AND LEARNING, 9 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Cross-Cultural Validation of a Measure of Science Teachers' Pedagogical Content Knowledge (PCK)

For her PDA, Professor Park conducted a cross-cultural validation of a new measure of science teachers' Pedagogical Content Knowledge (PCK) that she has developed and validated for the past five years. The latest version of the PCK measure yields reliable and valid PCK scores in the context of the US. Professor Park examined if the measure yields similar results in two other countries in which educational and sociocultural contexts differ from the U.S.: Korea and Saudi Arabia. Outcomes of this project include: 1) PCK measure with adequate evidence for validity and reliability, 2) one book chapter, 3) three manuscripts, one in review and two in preparation, and 4) five conference presentations. The PCK measure will be used as a means to monitor pre-service teachers' PCK development and to assess the effectiveness of teacher education courses in relation to improving PCK. Given the lack of a sound PCK measure, this new measure will enable researchers to quantitatively examine the critical relationship between PCK and variables associated with student learning, and to make a larger impact on educational policies and teaching and learning of science.

**PEMMARAJU, SRIRAM V., PROFESSOR, COMPUTER SCIENCE, 15 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Distributed Algorithms for Epidemic Models

During his PDA, Professor Sriram Pemmaraju designed and analyzed fast algorithms with low communication needs in large-scale distributed computing environments. The problems for which he designed algorithms were network-based. He aims to apply these solutions to the design of fast, distributed algorithms for epidemic simulations. These epidemics could occur within a hospital setting or they could be geographically dispersed across a state. Professor Pemmaraju's work during his PDA has led to four papers, two new research collaborations, and two federal grant proposals in preparation. Additionally, Professor Pemmaraju has also supervised three PhD students and updated course material for graduate courses on distributed algorithms and computational epidemiology. Certain aspects of Professor Pemmaraju's work relate directly to improving patient outcomes at the University of Iowa Hospitals and Clinics.

**PORTER, HORACE A., PROFESSOR, ENGLISH, 16 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Writers in the Ring: American Writers on Boxers

Professor Horace Porter did a substantial amount of reading and research for his book, "Writers in the Ring: American Writers on Boxers," for which he was awarded a PDA. He drafted a chapter dedicated to a critical reading of Floyd Patterson's autobiography, "Victory Over Myself," and to various writers' responses (including Norman Mailer, James Baldwin, and A.J. Liebling) to Patterson's fights with Ingemar Johansson and Sonny Liston. Professor Porter also spent several weeks wrapping up his forthcoming anthology (2015): "Dreaming Out Loud: African American Novelists at Work." Porter completed two articles: "Inventing Truth: Facts, Fiction and Slavery in Song of the Shank" and "Second Novel No End: An Open Letter to Ralph Waldo Ellison." Professor Porter's book on African American novelists will enhance his teaching of courses at the University of Iowa on American and African American Literature. His research and writing on boxing (especially about death in the ring) will help explain the consequences of injury in college and professional sports.

**POULAKOS, P. T., ASSOCIATE PROFESSOR, RHETORIC, 25 YEARS OF SERVICE, FALL SEMESTER**

*Title:* The Performative Character of Self-Display Speeches

Professor Poulakos completed most of the research and writing for his book on the Performative Character of Self-Display Speeches. Adding a historical dimension to the manuscript, the book now offers a more complete sense of how these speeches become performed and how they change across time and in different cultural contexts. Even with this additional angle to the project, Professor Poulakos is committed to submitting the book for publication by the end of 2015. This project will affect the instruction of public speaking to first-year students as well as the teaching of forms of persuasion and online forms of self-presentation for more advanced students. The project will also contribute to a better understanding to engaged citizens of the link between democracy and public speaking and its changes over time.

**RAGHAVAN, MADHAVAN L., PROFESSOR, BIOMEDICAL ENGINEERING, 15 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Medical Device Design and Biomechanics Research Through International Collaborations

The overarching objective of Professor Raghavan's Professional Development Assignment (PDA) was to develop new international collaborations and leverage existing ones to enhance my research and teaching. Efforts during the PDA include collaborative research with colleagues in India and Brazil and visits/meetings and lectures at Biomedical Engineering institutions in India. In the process, Professor Raghavan has developed new ideas for research and collected material to enhance his teaching. Collaborative manuscripts and research grants have also been developed - some in review and others in preparation. The faculty development effort has contributed to enhancing Professor Raghavan's international collaborations enabling new paths of research that may lead to discoveries in biomechanics. It has also provided him with a global perspective to medical devices that will enhance his teaching efforts at University of Iowa.

**REISINGER, WILLIAM M, PROFESSOR, POLITICAL SCIENCE, 30 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Subnational Public Opinion and Russia's Political Future

Professor Reisinger supervised the initial stage of a three-year federal grant supporting public opinion surveys and elite interviews to be conducted in 2015 in Russia, Ukraine and Georgia. During the PDA, he and his collaborators secured human-subjects approval from the University of Iowa IRB, prepared for and conducted a three-day planning meeting in Tbilisi, and completed preliminary versions of the questionnaires. Reisinger wrote three manuscripts: one now published, one accepted for publication in 2015 and one under review. He submitted for review at university presses a separate, substantially completed book manuscript. He delivered invited lectures on his research at universities in China and Russia. Reisinger's work provided him with a deeper understanding of support for the political regime in Russia and other authoritarian regimes. This will translate into enhanced teaching materials for his courses, specifically his regular offerings on Russian and Eurasian Politics, Authoritarian Politics, and Russian foreign policy. It will also strengthen his public lectures and media appearances interpreting developments in Russia and Eastern Europe.

**SCHLUTTER, MORTEN, ASSOCIATE PROFESSOR, RELIGIOUS STUDIES, 12 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* The Evolution of Chinese Chan Buddhism Seen through the Platform Sūtra

Professor Schlütter used his PDA to significantly advance his work on a book about a famous Chinese Buddhist text, known as the Platform Sūtra of the Sixth Patriarch that is foundational to the Chan (Zen) sect of Buddhism. This text is extant in a number of different versions spanning the eighth to the thirteenth centuries and Professor Schlütter's book will trace the history of Chan through the development of the text. He plans to submit the book to University of Hawai'i Press, with which he has a contract, in Spring 2016. Professor Schlütter also explored a new research project using Chinese landscape paintings from the Song dynasty (960-1279) to illuminate the role of Buddhism in society at the time. Furthermore, he worked on revising and rethinking several of his courses. The process of researching and writing his book and the work on his syllabi will do much to enhance his courses and benefit his teaching. There is great interest in the topic of his book, and it will be written to address a wide audience of academics in various disciplines, members of the educated public, and advanced undergraduates, benefiting the general public, the University of Iowa, and the state of Iowa

**SCHWALM, LESLIE A., PROFESSOR, HISTORY, 24 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Racial Knowledge and America's Civil War

Professor Schwalm spent the spring semester processing her archival research and writing her book's first chapter; outlining the book's remaining four chapters; writing two (invited) conference papers (one presented at the University of Maryland, the other to be presented in Sept. 2015 at the University of Sao Paulo (Brazil)). She also wrote a scholarly article on her book project, which she submitted to a leading journal (by invitation of the journal's board of editors; now undergoing peer review). In the spring semester, when she teaches two history courses on the Civil War, she will draw deeply on this new research to introduce students to the war's history of medicine. In charting the relationship of Civil War medicine to new ideas about race and the rise of the medical profession, Professor Schwalm's new research helps all Americans (Iowans among them) better understand the historical forces behind contemporary issues of structural racism.

**SNITZER, JAMES G, PROFESSOR, ART AND ART HISTORY, 39 YEARS OF SERVICE, HALF TIME FOR ONE YEAR (SPRING 2014 & FALL 2014)**

*Title:* The Constructed Landscape

Professor Snitzer produced several suites of images, using a variety of contemporary and historic photographic processes, during his PDA. His work investigated the culture's often conflicting views of the landscape as it is portrayed in the media and exists in the popular imagination. His studio-constructed tableaux of model landscapes, both real and speculative, were translated into several different 19th Century imaging processes. By working in both photographic and print-based media, Professor Snitzer will be able to present these different suites of images in different competitive exhibition venues both regionally and nationally. Professor Snitzer also utilized timed-based digital media to create virtual cinematic sequences of simulated landscape images. This work, which is still being developed with the help of several graduate students, will be presented as a computer based faux Google-earth flyover. Professor Snitzer will demonstrate the wet plate process to interested photography students - both graduate and undergraduate - and will offer a photogravure workshop to the graduate print students in upcoming semesters.

**STERN, DAVID, PROFESSOR, PHILOSOPHY, 26 YEARS OF SERVICE, HALF TIME FOR ONE YEAR (FALL 2013 & FALL 2014)**

*Title:* Wittgenstein in the 1930s

Professor Stern worked on two book projects. The first book is titled "Wittgenstein's lectures, Cambridge 1930-1933, From the Notes of G. E. Moore." It will make available the text of verbatim notes taken by a distinguished philosopher who attended Wittgenstein's lectures during a period in which his views were rapidly changing. During the assignment period, he completed work on an editorial introduction and apparatus for a print edition, to be published by Cambridge University Press, and a digital facsimile edition of the source manuscript, to be published online. He also worked on a book titled "Wittgenstein in the 1930s." This book is a study of the development of Wittgenstein's philosophy that draws on the extensive research he has done in this area. These projects will inform and enrich his courses on twentieth century philosophy, philosophy of language, and Wittgenstein. They have also led to three grants: a Franklin Research Grant from the American Philosophical Society (\$6,000, 2014), a UI Arts & Humanities Initiative Grant, (\$7,500, 2014) and an Obermann Center Summer Seminar for May 2015, (\$40,000). He also developed three new undergraduate courses.

**TANG, QIHE, PROFESSOR, STATISTICS AND ACTUARIAL SCIENCE, 9 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Modeling and Analyzing Extreme Risks in Insurance and Finance

During the PDA period and the adjacent summer and winter breaks, Prof. Tang produced four joint papers (which were submitted earlier but revised and finalized during the award period), one joint paper under review, and two more joint papers in progress. He participated in five international conferences, delivered six invited talks at conferences or universities, and delivered two contributed talks at conferences. In addition, he paid short research visits to six universities. The research outcomes will be used in an advanced topics course to be offered by Prof. Tang in fall 2015, and two papers mentioned above have involved one of his current doctoral students as a coauthor. Prof. Tang's research, which is focused on modeling and analyzing extreme risks in insurance and finance, has societal impacts on the State of Iowa, seeing that Iowa is a major center of the U.S. insurance industry and its capital city, Des Moines, is the third largest "insurance capital" in the world.

**UKSTINS PEATE, INGRID, ASSOCIATE PROFESSOR, EARTH AND ENVIRONMENTAL SCIENCES, 8 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Investigating Volcanic Eruptions and Mass Extinction Events

Dr. Ingrid Ukstins Peate used her Professional Development Assignment in Spring of 2015 to expand her research on volcanic eruption mechanisms and processes. A National Aeronautics and Space Administration Solar System Workings (NASA SSW) grant to I Ukstins Peate (\$501,284) uses Askja Volcano, Iceland as a test bed for weathering and deposition of Mars clastic deposits. Ukstins Peate prepared for, and conducted, a field expedition to Askja Volcano, Iceland to begin research on this project. She prepared eight journal manuscripts or book chapters which are in press or under review. She prepared two federal grant applications (NASA and National Science Foundation), which will be submitted in current and upcoming grant application deadlines. She revised four undergraduate classes and prepared two new undergraduate courses to teach at the University of Iowa. She was involved with eight conference presentations, all of which include undergraduate students or graduate students doing research projects with her, and which took place at national and international scientific conferences in the United States and other countries.

**VLASTOS, STEPHEN, PROFESSOR, HISTORY, 39 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Postwar Japan History: National Identity Formation from Occupation to 21st Century Globalization.

Professor Stephen Vlastos used the PDA to advance three projects: (1) Development of a new undergraduate course entitled "Postwar and Contemporary Japan" (HIST 4616). This course augments History, International Studies, International Relations, and Japanese Studies BA course offerings; (2) Acceptance of a commission to join world-class scholars of premodern Japanese history in contributing an essay on Tokugawa rural protests to "The Tokugawa World"; (3) Initiating research for chapter one of a book, "Postwar and Contemporary Japan," editor Christopher Gerteis, U. of London. As noted above, the new course benefits UI undergraduates in the History, ISBA, IR & Japanese BA programs. Participation in "The Tokugawa World" project adds to the national and international visibility of UI's Center for Asian and Pacific Studies. Japan ranks third as a consumer of Iowa exports and Japan is America's most important ally in the Pacific.

**WATT, SHERRY K., ASSOCIATE PROFESSOR, EDUCATIONAL POLICY & LEADERSHIP STUDIES, 15 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Development of an Instrument to Measure Privileged Identity Exploration (PIE)

Professor Watt extended her research on reactions to difficult dialogues about race, sexual orientation, and disability by developing an instrument to measure the Privileged Identity Exploration (PIE) model and testing individual items. The Watt PIE Model identifies eight defensive reactions (denial, rationalization, intellectualization, minimization, deflection, false envy, principium, and benevolence) often displayed during difficult dialogues or when a learner engages in reflection on his/her social, political, and economic position. During her PDA, Watt re-articulated the theory and tested items designed to measure the model that emerged from a five-year qualitative study analyzing personal narratives and reaction papers written by helping professionals in training during an annual offering of a course in multiculturalism. This instrument identifies and raises awareness about these reactions. Testing the Watt PIE Model is an important next step in the research that informs and addresses how effective, transformative sociocultural learning occurs within the educational process in postsecondary institutions as well as in dialogues about local community and larger societal issues.

**WEINER, JOSHUA, ASSOCIATE PROFESSOR, BIOLOGY, 11 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Identifying Roles for Protocadherin Adhesion Molecules in Clinically-Relevant Neuro-Immune Interactions

Dr. Weiner worked in the lab of a collaborating professor at the University of Bern, Switzerland during his PDA. Dr. Weiner's lab discovered that adhesion molecules ("sticky" proteins that bind cells together) called the Protocadherins are present at interfaces between the brain and the immune system. Neuro-immune interactions are relevant to infectious diseases of the brain and to Multiple Sclerosis (MS), which affects thousands of Iowans. While at Bern, Dr. Weiner performed experiments that indicated the Protocadherins are found on T cells, immune cells that control adaptive immunity, and learned experimental protocols for a mouse model of MS, called EAE. He can thus pursue the role of the Protocadherins in immune disorders in his lab at Iowa in future studies, and apply this knowledge to the neuroscience courses he teaches for both undergraduates and graduate students. Dr. Weiner also met with other collaborators in Europe on projects relating to a possible role of Protocadherins in Down Syndrome, gave seminars on his UI work at multiple institutions in Switzerland, Germany, and France, and worked on a publication co-authored with scientists at the University of Bern.

**WU, CHUN-FANG, PROFESSOR, BIOLOGY, 37 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* A Unique Opportunity of International Networking and Collaboration for Drosophila Neurogenetics Research, Teaching, and Publication

Prof. Chun-Fang Wu is recognized for expertise in neurogenetics of the fruit fly, *Drosophila*, a powerful model system. During his PDA, he developed new approaches to reveal nervous system mechanisms not accessible to conventional methodologies and further elucidated the striking effect of social interaction on lifespans of mutant flies with novel automated recording systems, supported by an NIH grant. In this period, he served as a vice-chair to organize the Gordon Research Conference on Neuromodulation in Hong Kong and also presented his research in the Connectomes Symposium at the HHMI Janelia Research Campus. He attended the SCBA 2015 International Symposium in Taipei and visited Academia Sinica to deliver seminars and conduct consultation interviews. These events led to several long-term collaboration projects. As Editor-in-Chief of Journal of Neurogenetics, he moulded the journal as a forum for expert opinions, resulting in two Special Issues on Neurogenetics of Connectomes and Neurodegenerative Diseases: from the Bench to the Clinic. The above endeavors helped promote UI's role in serving as a center for international collaboration in *Drosophila* neurogenetic research.

**ZHANG, XIAOYI, ASSOCIATE PROFESSOR, MATHEMATICS, 6 YEARS OF SERVICE, FALL SEMESTER**

*Title:* Critical Nonlinear Schrodinger Equations on General Manifolds

During Professor Zhang's Fall 2014 PDA, she conducted research activities related to nonlinear dispersive equations and fluid dynamics. Her main activities included: 1) co-organizing an AMS special session meeting; 2) visiting her collaborator, Dong Li, at the University of British Columbia, and writing a joint research article on equations in fluid dynamics; and 3) finishing a research article with collaborators at UCLA on nonlinear Schroedinger equation. In addition, based on her lecture series given in Fudan University in Summer 2014, Prof. Zhang finished her book entitled "Lecture notes on the basic analysis tools for critical dispersive PDEs," which has been submitted for publication. These activities not only broaden her research scope and stimulate possible intradepartmental collaborations, they also enhance her classroom teaching, both at the graduate and undergraduate level.

**ZHUPANSKA, OLESYA I., ASSOCIATE PROFESSOR, MECHANICAL AND INDUSTRIAL ENGINEERING, 8 YEARS OF SERVICE, SPRING SEMESTER**

*Title:* Advanced Composite Materials: Exploring Relationship between Complex Microstructure and Multifunctionality

Professor Zhupanska conducted research on composite materials during her PDA in Spring 2015. Composite materials play a pivotal role in various aspects of our lives, from national security to energy conservation and sustainability efforts. For instance, fiber-reinforced composites are widely utilized in wind energy industry, which is vital to the State of Iowa economy. During the PDA, Prof. Zhupanska's research focused on the various aspects of mechanics of composites including investigation of the effects of complex microstructure on the macroscopic mechanical response, investigation of failure, etc. Research outcomes include one journal paper published (and three papers in preparation), seven conference papers accepted, four research seminars presented. Benefits to the students at the University of Iowa include mentoring graduate students. During the PDA, Professor Zhupanska served as an advisor/co-advisor on six Ph.D. and one M.S. theses. The PDA research outcomes will also contribute to the curriculum through adding new lectures on composites to Intermediate Mechanics of Deformable Bodies course that Prof. Zhupanska will teach in Fall 2015.

IOWA STATE UNIVERSITY

**ARORA, RAJEEV, PROFESSOR, HORTICULTURE, 13 YEARS OF SERVICE, 1/12/15-7/11/15**

Professor Arora carried out several experiments at the Max Planck Institute of Molecular Plant Physiology in Germany during his assignment. He established the threshold sub-freezing temperature above which plant recovery is possible, a key component of his work to understand how plants recover from freeze-thaw stress. Arora also delivered six presentations and seminars (in Germany, Austria, and the Czech Republic), and prepared a grant application during the period.

**BADO, NIKKI, ASSOCIATE PROFESSOR, PHILOSOPHY AND RELIGIOUS STUDIES, 11 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Bado used her PDA to expand on a book project on Japanese religious rituals, festivals and material culture, and to incorporate this work into her classroom teaching. Bado also founded a journal, *Body and Religion*, the first of its kind on the subject, and participated in a conference at Ohio State University.

**BRONIKOWSKI, ANNE, ASSOCIATE PROFESSOR, ECOLOGY, EVOLUTION, AND ORGANISMAL BIOLOGY, 10 YEARS OF SERVICE, 8/16/14 – 12/31/14 (change from full academic year to one semester)**

Professor Bronikowski's PDA focused on demographic modeling and bioinformatics. Her work resulted in five published journal articles, four additional manuscripts in process, and two invited presentations. Bronikowski also earned \$820,000 in funding from the National Institutes of Health and Iowa Science Foundation, with an additional \$726,000 in pending funding.

**CAMPBELL, CHRISTINA, ASSOCIATE PROFESSOR, FOOD SCIENCE AND HUMAN NUTRITION, 5.5 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Campbell used the PDA to further her work on prenatal exercise and diet strategies to promote optimal maternal and fetal health. Results of this work included the preparation and submission of six manuscripts; the submission of two external funding proposals; and a paper presentation in Scotland. Campbell also joined the editorial board of the Journal of Behavioral Nutrition and Physical Activity, and is using the experience gained during her PDA to benefit Iowa State's dietetics students.

**CHAN, CHIU-SHUI, PROFESSOR, ARCHITECTURE, 25 YEARS OF SERVICE, 8/16/14-12/31/14**

Professor Chan's assignment in Ames and China focused on develop computer-aided modeling prototype to enhance digital design in the architecture community. This work led to a new graduate course, first offered in Spring 2015; a completed book, *Style and Creativity in Design*, which was also translated into Chinese; and the preparation of a joint \$50,000 grant proposal.

**CLOUGH, MICHAEL PAUL, ASSOCIATE PROFESSOR, SCHOOL OF EDUCATION, 15 YEARS OF SERVICE, 8/16/14 – 12/31/14**

Professor Clough used his PDA to complete several research studies related to science teaching and learning. These studies led to the preparation and submission of 10 manuscripts, and the submission of a \$1.07 million funding proposal. Clough's work has enhanced several courses that are part of Iowa State's secondary science teacher education program, benefiting future Iowa teachers (*and their future students*), and incorporating Next Generation Science Standards.

**DILLA, WILLIAM, ASSOCIATE PROFESSOR, ACCOUNTING, 16 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Dilla completed an assignment at the University of Gothenburg (Sweden) Centre for Business Solutions to learn more about sustainability reporting and assurance practices at Swedish companies. This work resulted in a manuscript describing how a global manufacturer coordinates its management and sustainability control systems. Dilla also submitted four journal articles, and delivered a conference presentation on his work.

**ELIA, NICOLA, ASSOCIATE PROFESSOR, ELECTRICAL AND COMPUTER ENGINEERING, 15 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Elia spent his PDA building upon his research in network control systems. This work resulted in the preparation and submission of five journal articles, three submissions for conference presentations, six speaking invitations, and several new collaborations with peers. Elia earned \$250,000 in new funding as a result of the PDA, while also utilizing time from the assignment to begin work on a previously received \$360,000 grant.

**HADDAD, MONICA, ASSOCIATE PROFESSOR, COMMUNITY AND REGIONAL PLANNING, 11 YEARS OF SERVICE, 1/1/15-5/15/15**

Professor Haddad used her assignment to conduct quantitative research on urbanization, the environment, and planning in Brazil. To date, this work has resulted in a journal article, conference presentation, invited talk, and the development of new topics in Haddad's advanced geographic information systems course.

**HOGBEN, LESLIE, PROFESSOR, MATHEMATICS, 36 YEARS OF SERVICE, 8/16/14 – 5/15/15**

Professor Hogben spent her PDA as a member of the Institute for Mathematics and its Applications in Minnesota, where she performed research on combinatronics and graph theory, and attended three workshops. Additional work included editing, and writing a chapter for a book on combinatronics; completing five manuscripts; and earning \$23,000 in National Science Foundation funding.

**HOLMGREN, MARGARET, ASSOCIATE PROFESSOR, PHILOSOPHY AND RELIGIOUS STUDIES, 31 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Holmgren contributed an essay to a book on forgiveness during her PDA, as well as research issues of humility and virtue that will be used in an upcoming book, and in her Iowa State courses. Holmgren also designed and proposed a new course on Buddhist Philosophy, which she will teach in Spring 2016 as the department's first course in non-Western philosophy.

**IVERSON, NEAL, PROFESSOR, GEOLOGY AND ATMOSPHERIC SCIENCES, 17 YEARS OF SERVICE, 8/16/14 – 5/15/15**

Professor Iverson's PDA, spent both on campus in Ames, and at the Norwegian University of Technology funded through a Fulbright research grant, resulted in five published or accepted journal articles on glacial hills and glacial sliding, and a sixth article currently in review. Activities during the PDA also included delivering four invited lectures in Denmark and Norway; working with ISU graduate advisees to analyze field data; and submitting two National Science Foundation proposals, which resulted in \$17,000 in new funding, and \$989,000 in pending funding.

**JANZEN, FREDRIC JAY, PROFESSOR, ECOLOGY, EVOLUTION, AND ORGANISMAL BIOLOGY, 20 YEARS OF SERVICE, 8/16/14-12/31/14**

Professor Janzen focused his assignment on writing numerous scientific papers, including eight published works, five submitted manuscripts, and eight other works in process. He also developed a new international field biology course with colleagues in Australia; conducted field work with students in Clinton, Iowa; and gained \$1.1 million in research funding (PI or co-PI), with an additional \$500,000 in pending awards, during the period.

**JEFFRIES-EL, MALIKA, ASSOCIATE PROFESSOR, CHEMISTRY, 9 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Jeffries-EL served as a Martin Luther King, Jr., visiting professor of chemistry at the Massachusetts Institute of Technology, where she pursued new research directions in materials design and synthesis. The PDA resulted in three published manuscripts in peer-reviewed journals, presentations at two international conferences, and several invited talks at American universities. Jeffries-EL will also use the research from her assignment to enhance the training of graduate students in her research group, and develop new funded research programs.

**JIANG, ZHENGRUI, ASSOCIATE PROFESSOR, SUPPLY CHAIN AND INFORMATION SYSTEMS, 6 YEARS OF SERVICE, 8/16/14 – 12/31/14 (change from full academic year to one semester)**

Professor Jiang focused on application-driven data and knowledge management, and the diffusion of innovations and related marketing decisions, and included research with colleagues in Texas, Seattle, China, and New Zealand. To date, this work has resulted in the submission of a manuscript, a working paper, the acquisition of new data sets, and has enhanced Jiang's knowledge of best practices in teaching and research.

**KRIZAN, ZLATAN, ASSOCIATE PROFESSOR, PSYCHOLOGY, 7 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Krizan's used the PDA to further a new research focus toward understanding sleep, self-control, and personality. Results included three published journal articles and book chapters on the role of sleep in behavior, a collaborative paper on the behavioral genetics of sleep, and \$473,000 in funding from the National Science Foundation.

**Lajoie, John, Professor, Physics and Astronomy, 17 Years of Service, 8/16/14 – 12/31/14**

Professor Lajoie used his PDA to complete the construction, installation, and commissioning of a novel new particle physics detector at the Relativistic Heavy Ion Collider at Brookhaven National Laboratory in New York. This device makes measurements to help explain the structure of nuclear matter, and supports Lajoie's research in quantum chromodynamics. As leader of the project, Lajoie's work also enhanced the reputation of Iowa State and the Department of Physics and Astronomy.

**Lee, Suman, Associate Professor, Greenlee School of Journalism and Communication, 10 Years of Service, 1/1/15 – 5/15/15**

Professor Lee's PDA focused on Chinese and Korean consumers' view of Iowa and its agricultural products, and analysis of media coverage of these topics. Lee is working to share the results of this work at major journalism and mass communication conferences, and in top academic journals. Project outcomes are also discussed as international case studies in Lee's Iowa State courses, including Public Relations Theory and Method, and Crisis Communication.

**Levis, John, Associate Professor, English, 14 Years of Service, 8/16/14 – 12/31/14**

Professor Levis' PDA focused on the role of pronunciation in intelligible speech, in support of an ongoing book project. Work during the period also included co-editing a book on English pronunciation; preparing three accepted journal articles; writing four book chapters; delivering papers at workshops in Singapore, Canada, and the Czech Republic; editing the new Journal of Second Language Pronunciation, which Levis proposed and serves as editor; and developing a new graduate course at Iowa State.

**Levitas, Valery, Professor, Aerospace Engineering and Mechanical Engineering, 6 Years of Service, 8/16/14 – 12/31/14**

Professor Levitas worked with materials genomics colleagues at the National Institute of Standards and Technology, and the Geophysical Laboratory of the Carnegie Institution of Washington, during his PDA. Results of this work include the preparation and/or submission of eight research manuscripts, six invited talks, new research opportunities for Iowa State graduate students, and enhancements to two engineering courses. Levitas also earned more than \$850,000 in funding from the National Science Foundation and Office of Naval Research as a result of the PDA.

**Liu, Hailiang, Professor, Mathematics, 12 Years of Service, 8/16/14 – 12/31/14**

Professor Liu's PDA focused on developing mathematical tools and numerical algorithms to recover high-frequency wave fields in applications such as solar energy and medical imaging. Results included five research manuscripts on these and related topics, and new research collaborations in China, Germany, and the United Kingdom. The PDA is also being used to improve Liu's classroom teaching at Iowa State.

**MARGRETT, JENNIFER, ASSOCIATE PROFESSOR, HUMAN DEVELOPMENT AND FAMILY STUDIES, 8 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Margrett used the PDA to develop a National Institutes of Health R01 grant (to be submitted in early 2016) to investigate how social partners and spouses maintain cognitive vitality throughout adulthood, as well as how they identify and adapt to changes. This work resulted in six published and submitted manuscripts; five completed/accepted conference presentations, and course enhancements to benefit Iowa State students in family health, gerontology, and cognitive health. Margrett also earned more than \$380,000 in research grants and subcontracts during the period of her PDA.

**MCCORMICK, JAMES, PROFESSOR, POLITICAL SCIENCE, 39 YEARS OF SERVICE, 8/16/14 – 12/31/14 (change from spring semester to fall semester)**

Professor McCormick used his PDA to serve as a visiting professor/fellow at the US Studies Centre in Sydney, and the Australian National University in Canberra, and to conduct research to better understand how American foreign policy impacts Australian foreign policy. McCormick conducted 23 interviews with Australian colleagues, which serve at the basis for multiple conference presentations and manuscripts, and enhance Asia-Pacific expertise in Iowa State's Department of Political Science.

**OLSON, JOANNE, ASSOCIATE PROFESSOR, SCHOOL OF EDUCATION, 15 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Olson's PDA plans changed when she was awarded management of a \$4.5 million National Science Foundation grant in Fall 2014, and also named director of Iowa State's Center for Excellence in Science, Mathematics, and Engineering Education. However, in addition to managing these new responsibilities, Olson was able to submit five research manuscripts and a book chapter (as outlined in her original proposal), and to help prepare K-12 teachers address new science education standards that include engineering.

**PROZOROV, RUSLAN, PROFESSOR, PHYSICS AND ASTRONOMY, 9 YEARS OF SERVICE, 8/16/14 – 12/31/14**

Professor Prozorov used his PDA to work with colleagues at the University of Illinois to develop experimental tools for the study of nano-magnetism. These tools have led to the initiation of several new projects in Prozorov's laboratory, and provided research opportunities to several Iowa State graduate and undergraduate students. The PDA has also resulted in a National Science Foundation funding proposal worth \$183,000.

**RAICH, JAMES, PROFESSOR, ECOLOGY, EVOLUTION, AND ORGANISMAL BIOLOGY, 22 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Raich used his PDA to collaborate with ecosystem ecologists at the University of Michigan in the research of terrestrial carbon-cycling processes, and to learn about the university's interdisciplinary graduate programs in ecology and global-change. Raich also used the assignment to complete additional chapters of a book project, and to enhance his teaching at Iowa State.

**RAMAMOORTHY, ADITYA, ASSOCIATE PROFESSOR, ELECTRICAL AND COMPUTER ENGINEERING, 8 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Ramamoorthy's PDA focused on better understanding the benefits of coding in cloud storage platforms, in particular, the role of scheduling requests on platforms that contain coded information. This work has resulted in the submission or preparation of journal manuscripts and conference presentations, and will form the basis for future funding proposals. Insights will also be incorporated into Iowa State graduate courses.

**RICHARDS, CHUCK, ASSOCIATE PROFESSOR, INTEGRATED STUDIO ARTS, 16 YEARS OF SERVICE, 1/1/15-5/15/15**

Professor Richards, known for his work on children's literature, used the assignment to complete the final manuscript and artwork for *Catch That Cat*, and the initial manuscript and drawings for *Grandma Budgie Knits a Nest*. Richards also attended multiple writing workshops, as well as an artist's residency, and developed an experimental course on sequential narrative drawing, which will be offered in Spring 2016.

**STEWART, SUSAN, ASSOCIATE PROFESSOR, SOCIOLOGY, 11 YEARS OF SERVICE, 1/1/15 – 5/15/15 (change from fall semester to spring semester)**

Professor Stewart used her PDA to complete a book project on the controversial and increasing practice of parents and children sleeping together at night, to be published in 2016. This work will also contribute to the teaching of undergraduate and graduate students, and be a useful resource for both parents and medical/social service professionals.

**VASWANI, NAMRATA, ASSOCIATE PROFESSOR, ELECTRICAL AND COMPUTER ENGINEERING, 9 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Vaswani worked with colleagues at the University of Illinois' (UIUC) Coordinated Science Lab to support ongoing work in the broad area of sparse recovery. This work led to invited seminars at five major American universities; the submission of two journal manuscripts; and collaborations with colleagues at UIUC, Michigan State University, and the Technion (Israel). Vaswani's exposure to peers through the PDA likely led to \$700,000 in new National Science Foundation funding, and a collaborative big data proposal worth nearly \$1 million.

**WEI, MEIFEN, PROFESSOR, PSYCHOLOGY, 12 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Wei's PDA expanded her research program on coping with minority related stress, including the collection of three new datasets on acculturative stress and affect regulations; the preparation and/or submission of five journal articles (two in-press, two under review, and one preparing for publication); the development of new collaborations with colleagues in Taiwan; and enhancements to both graduate students' professional development and related coursework at Iowa State.

**WU, ZHIJUN, PROFESSOR, MATHEMATICS, 14 YEARS OF SERVICE, 8/16/14 – 12/31/14 (change from full academic year to one semester)**

Professor Wu used the PDA to investigate mathematical theories in ecological and evolutionary modeling. This work resulted in a published paper on symmetric evolutionary games; a submitted paper on the simulation of yeast cooperation; development of a software package to compute the equilibrium states of evolutionary games; and the development of a senior undergraduate research seminar course on evolutionary game theory at Iowa State.

**ZHAO, YAN, PROFESSOR, CHEMISTRY, 12 YEARS OF SERVICE, 1/1/15 – 5/15/15**

Professor Zhao's PDA focused on collaborative research and teaching at Beijing Normal University in China, in the areas of light harvesting and photocatalysis. The results of this work included the publication of a journal article; and new collaborations with Beijing Normal University, including a potential student exchange program. Although the PDA did not directly result in new grant funding, Zhao received a \$1.6 million National Science Foundation and National Institutes of Health grant upon his return to the U.S.

UNIVERSITY OF NORTHERN IOWA

**BOYD, MELINDA, ASSOCIATE PROFESSOR, SCHOOL OF MUSIC, 5 YEARS OF SERVICE, SPRING SEMESTER**

*Dolly Parton: Image, Music, Text*

The overall nature of this project was to continue Professor Boyd's research and analysis of the music of Dolly Parton (b. 1946), in order to complete a monograph on this subject. This book, which will examine the original songs of Parton and the interrelationship among lyrics, music, and her image, will make a substantive advancement within current musicological research on women as creators (rather than re-creators or performers) of country music. Through the book's insights into Parton's music and her role as an American icon, and Professor Boyd's continuing public lectures, citizens of Iowa will be able to learn more about how country music in general has become an essential part of the cultural identity of the American Midwest. UNI students also will benefit from Professor Boyd's research as she continues integrating her expanded knowledge and findings into the classroom, improving existing courses (Studies in Women in Music) and developing new courses (Popular Music Studies; American Music Studies).

**BROWN, SETH, ASSOCIATE PROFESSOR, PSYCHOLOGY, 11 YEARS OF SERVICE, FALL SEMESTER**

*A Comprehensive Examination of Self-Stigma Among Those with Substance Use Disorders*

This project examined the phenomena of stigma among active/recent substance users. To this end, Professor Brown's project included formulating and submitting three manuscripts to peer reviewed journals and initiating a second phase of research data collection. These actions enabled him to document the extent to which those with substance use disorders hold negative attitudes towards themselves, and measure the magnitude to which self-stigma influences one's attitudes towards or inclination to seek out substance use treatment. The research stemming from this project brings recognition to the UNI as a leader on this topic, which will likely attract undergraduate and graduate students to the university; provides unique research and clinical opportunities for UNI graduate students; and could facilitate future grant funding. Those struggling with substance use (both in and outside Iowa) may benefit from this research through interventions developed to address self-stigma. Furthermore, this information will be disseminated more specifically to the citizens of Iowa through consultation with local substance use providers as well as UNI undergraduate and graduate course instruction, to ideally alter behaviors that would benefit substance users and non-substance users in the Iowa community.

**CHIN, R. MARTIN, PROFESSOR, CHEMISTRY & BIOCHEMISTRY, 14 YEARS OF SERVICE, SPRING SEMESTER**

*Synthesis of a Diruthenium Alkane Complex*

This project developed a new catalytic system that replaced the hydrogen atom in a C-H bond of benzene with a silicon atom, using a diruthenium complex to facilitate what is known as a silylation reaction. The advantage of this reaction over other reported silylation reactions is that it does not require hydrogen in the same way. The reaction has the potential to help change the way more complex molecules (such as drug molecules) are synthesized using inexpensive hydrocarbon feedstock. Professor Chin will be submitting a grant proposal to the National Science Foundation based on this work at the end of September 2015. His work also supports an active and productive chemistry and biochemistry research program at UNI, producing well-trained graduates.

**DEMASTES, JAMES, BIOLOGY, 15 YEARS OF SERVICE, SPRING SEMESTER**

*The Persistence of Diversity: A Genetic Study of a Species Experiencing an Ongoing Shift in Geographic Distribution*

The geographic distribution of a species may shift over time as a result of environmental change. Although several studies have examined the genetic effects of past range shifts, few have examined the genetics of range shifts as they occur in real time. This project enabled Professor Demastes to expand, to the genetic level, his ongoing study of a species that is experiencing an ongoing shift, and test hypotheses related to how well populations recover from shifts' genetic consequences. This research has direct links to climate change research and its effects in Iowa, and enhances Professor Demastes' ability to teach courses using up-to-date information. This research has already resulted in two manuscripts by Professor Demastes, with several PIs, that have been accepted for publication in the scholarly journals *Molecular Ecology* and *Journal of Mammalogy*. This project further gave UNI students opportunities to participate in meaningful scientific endeavors—one of the best ways to ensure that Iowa produces top scientists, engineers, and educators.

**FROYUM, CARISSA, ASSOCIATE PROFESSOR, SOCIOLOGY, ANTHROPOLOGY & CRIMINOLOGY, 6 YEARS OF SERVICE, FULL YEAR**

*Emotions in Volunteer Work*

Social service agencies rely on volunteers to carry out their missions of helping the most vulnerable. Because volunteering is freely chosen and can end at the volunteer's discretion (Snyder and Omoto, 2008), it is important to understand how volunteers experience their work, what obliges them to continue their commitments, and what compels them to end the commitments. Professor Froyum's project included completing a book investigating these issues, and conducting an interview project examining the emotional experiences of volunteers; the latter focused on the role of emotions and emotion management in order to address what maintains and disrupts volunteerism. Her book, *Creating and Contesting Social Inequalities: Contemporary Readings* is currently in press. It will be released by Oxford University Press in February of 2016. Her work is relevant given that Iowa has the third highest rate of volunteerism in the U.S., with 38.4 percent of individuals sixteen and older volunteering in 2011 (Corporation for National and Community Service, 2012). In addition, understanding volunteerism issues helps Iowa's social service agencies to better facilitate meaningful volunteer experiences and sustain the commitment of volunteers. This project also contributes to her courses, which look at social inequalities, emotion work, and identity formation, and incorporate service learning via Professor Froyum's connections with the volunteer community.

**GOATLEY, CYNTHIA, PROFESSOR, THEATRE, 22 YEARS OF SERVICE, FALL SEMESTER**

*The Libretto for a One-Act Opera about Explorer Isabella Bird in the Rocky Mountains*

This project was devoted to the writing of a libretto for an original one-act opera about explorer Isabella Bird, the first operatic work solely devoted to Bird that Professor Goatley can determine. Bird circled the globe three times and became the first woman to become a fellow of the Royal Geographical Society. The project focused on Bird's exploration of the Rocky Mountains in 1873, which she climbed, traveled, and wrote about in her book, *A Lady's Life in the Rocky Mountains* (1879), composed of letters to her sister, Henrietta. Professor Goatley researched Bird, the time period of her exploration, and classical and contemporary one-act, small-cast operas; traveled to Colorado to identify scenes to be included in the opera; and wrote the libretto. Professor Goatley's work on this project is complete, but she is currently waiting for her collaborator, Dr. Rebecca Burkhardt, to write the score which will accompany the libretto so that the opera can be performed. As this opera reaches performance, UNI, the state of Iowa, and involved artists will receive recognition as the supporters of the opera's inception. In addition, the opera will also provide production opportunities for UNI students. Further, the project expanded Professor Goatley's playwriting craft, which she teaches at UNI.

**GOTERA, VINCE, PROFESSOR, LANGUAGES & LITERATURES, 18 YEARS OF SERVICE, FALL SEMESTER**

*Born from Bamboo: Poems from Philippine Myths*

Professor Gotera researched history and traditions of Philippine mythology and folklore as bases for writing poetry, then wrote 43 poems that relate, reinvent, and reinvigorate traditional Philippine folktales and epics. In several of the poems, the myths transcend Philippine environments and move to other locations such as the U.S. Professor Gotera has submitted some of these poems for publication in various journals and anthologies, both in the U.S. and in the Philippines. He is also revising the entire collection of poems for a book manuscript, *Born from Bamboo*. His work will be used in his creative writing classes, where he will encourage students, if they wish, to pursue mythological and folkloric subjects in their poetry, story, and essay writing, and where poetry-writing students specifically will learn about craft and technique.

**GRANT, DAVID, ASSOCIATE PROFESSOR, LANGUAGES & LITERATURES, 6 YEARS OF SERVICE, SPRING SEMESTER**

*Rhetorical Education: An Introduction to Thinking and Communicating in College and Beyond*

Instruction of oral communication and of written composition during the first year of college often look very different. Professor Grant's project consequently involved composing book-length instructional material for teaching assistants, faculty, and staff who face the challenge of integrating first-year speech and written composition, or "rhetorical education." Analysis was performed of instructional methods used in both composition and speech courses, in order to guide speech and composition instructors in delivering blended instruction in rhetoric across different modes—written, oral, and visual. Professor Grant has completed this book manuscript, entitled, *Teaching Rhetorical Education: Speaking, Writing and Civic Technologies*. He is currently working with acquisitions editors at Bedford St. Martin's Press, and hopes to have the book published with that press. This project will also be useful for programs newly integrating speech and written communication, such as at UNI. UNI's courses that blend composition and speech further benefit because of the university's focus on the fundamentals of education, and its complementary relationship between research and teaching.

**KOWALSKI, CHRISTOPHER, ASSOCIATE PROFESSOR, SCHOOL OF HEALTH, PHYSICAL EDUCATION & LEISURE SERVICES, 6 YEARS OF SERVICE, FALL SEMESTER**  
*A Qualitative Analysis of Occupational Valence, Perceived Organizational Support, and Efficacy Levels of Youth Workers*

Professor Kowalski interviewed ten participants to investigate their theoretical knowledge, practical techniques, and professional values associated with youth work, perceived attractiveness of the job to one's personal goals ("occupational valence"), and perceived organizational support associated with their current position. In doing so, the project identified factors that impact youth workers' efficacy levels (collegiate classes in their degree field, previous work experience, and volunteering at youth work agencies) and occupational valence. Professor Kowalski has submitted manuscripts based on this project to two peer-reviewed journals – *the Journal of Youth Development* and the *Journal of Nonprofit Education and Leadership*. These two manuscripts are currently under review with minor revisions for publication. He will also be presenting the results at the Iowa Parks and Recreation Association Spring 2016 Conference held in Council Bluffs, Iowa. Project results benefit UNI undergraduate students from a variety of disciplines (family services, social work, youth and leisure services)) by helping them learn essential information regarding staff development and youth work. Lastly, the results of this project have been used to assist UNI to continue to be recognized nationally as one of the leading institutions for effective development of supervisory staff at nonprofit, youth-serving agencies.

**LOCKHART, AMY, INSTRUCTOR, TEACHING, 13 YEARS OF SERVICE, FALL SEMESTER**  
*Terminal Degree Completion*

Professor Lockhart interviewed eight elementary teachers regarding perceptions about mentoring, and what motivates and influences classroom teachers to participate in the role of mentoring pre-service teachers (PSTs), for the purpose of identifying benefits and barriers of hosting a field experience student in an elementary classroom. All teachers in the study felt they grew professionally through mentoring. The mentor teachers also felt that mentoring was the best form of professional development for them personally. Because the field experience coordinator support (FEC) at UNI is unique (PSTs are assigned a FEC, who is an integral part of their classroom and teaching experience), the results of this study will provide the FECs and teacher education faculty with important data on how UNI PSTs are impacting student learning in classrooms. Furthermore, the classroom teachers' perceptions of their own impact on PSTs can only enhance how future teachers are prepared at UNI. Many of the teachers who are trained at UNI will teach in Iowa; the more effectively they are trained, the more supported are Iowa students. Professor Lockhardt successfully defended her dissertation in January 2015 and graduated with an Ed.D in May 2015.

**PALCZEWSKI, CATHERINE, PROFESSOR, COMMUNICATION STUDIES, 18 YEARS OF SERVICE, FALL SEMESTER**

*Seeing Vulnerable Citizenship: Watching Violence Against U.S. Suffragists 1913-1919*

Professor Palczewski's project involved composing a book proposal (and five chapters for editorial review, analyzing verbal and visual arguments regarding women suffrage during 1909-19. Topics include how images of women's vulnerability affected their ability to participate in a full range of citizenship short of the vote, arguments about women's capacity to vote and their appropriateness when in public (including racial complexities, which are visible in depictions of a march of 5000 women in 1913), treatment of women arrested for picketing, a little-discussed cross-country train tour by those arrested, and postcards that portrayed police brutality as comedic. The book project's research benefits UNI and Iowa citizens, especially their

understandings of citizenship, engagement, and civic responsibility. Professor Palczewski continues to lecture on the topic, thereby contributing to UNI's national reputation and showing other universities' faculty and students what UNI has to offer. Additionally, her work on visual arguments and woman suffrage advocacy enhances her teaching of Visual Rhetoric, Women's and Gender Studies, Gender Issues in Communication, and Rhetorical Criticism courses.

**POSINASETTI, NAGESWARA RAO, PROFESSOR, TECHNOLOGY, 12 YEARS OF SERVICE, SPRING SEMESTER**

*Optimization Methods for Sustainable Manufacturing Using Biodegradable Metal Working Fluids*  
Professor Posinasetti conducted a literature survey dealing with various aspects of machining, then formulated a research plan for a development of tools for an environmentally conscious machining operation. The focus of this project was motivated by the importance of sustainable manufacturing as an area of research, as the use of cutting fluids in manufacturing is widespread and is an important element of cost (7 to 17%, based on different estimates). Professor Posinasetti conducted experiments to collect data, leading to equations required for a mathematical model; this model utilized the costs involved in procuring, maintaining and disposing of cutting fluids per EPA guidelines. The model was then run in order to identify optimum cutting process factors. Professor Posinasetti has presented some of the results of his research at one academic conference in the spring, and has had papers accepted for two more conferences in fall 2015. He is also finalizing an NSF grant, "Investigation of vegetable oil based cutting fluids in machining operations for sustainable manufacturing" for submission in September 2015 with a total budget of \$253,345.00. His time in the U.S. and India facilitated connections for developing a comprehensive research program that extends the current metal working fluids research at UNI, and benefits the larger manufacturing industry.

**RIEHL, SUZANNE, ASSOCIATE PROFESSOR, MATHEMATICS, 12 YEARS OF SERVICE, FALL SEMESTER**

*Analysis of Data in Routes to Reason: Proportion*

While mentoring two undergraduate students/pre-service teachers, Professor Riehl used data from the *Routes to Reason: Proportion* project, which explores how proportional reasoning (for example, "How long will a 100 mile trip take if you drive 50 mph?") develops in middle school students. Her analysis focused on students' solution strategies when solving mathematical problems. Findings intimated there is a predictable pattern of development in students' understanding of proportion, and revealed a problem-solving strategy that suggests the difficulty in solving certain types of mathematical proportion problems. This project contributes to knowledge regarding the learning, and planning and assessment of teaching, of proportional reasoning—an important topic in middle school mathematics. In addition to presenting her research to practicing teachers of mathematics in Iowa, Professor Riehl will present this work at the Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education to be held in November, 2015. A report will be published in the conference proceedings. Additionally, She wrote and submitted the manuscript, *Missing Value Proportion Problems: The Effects of Number Complexity on Strategy Use*, to a mathematics education research journal. The manuscript was submitted in June 2015.

**SCHAFFER, J. BENJAMIN, ASSOCIATE PROFESSOR, COMPUTER SCIENCE, 12 YEARS OF SERVICE, SPRING SEMESTER**

Professor Schaffer analyzed the technology requirements of computer programming education occurring in a learning lab (a center that engages students in “mentor-led, interest-based, youth-centered, collaborative learning using digital and traditional media”). His project identified hardware and software needs to meet these requirements, in order to construct a prototype system to be used in a computer science learning lab and web-based instructional system supporting it; this was in collaboration with the Cedar Valley CoderDojo (community based programming clubs for youth). The Cedar Valley CoderDojo served over 50 Cedar Falls and Waterloo students in spring 2015 alone, and will continue to operate during 2015-16; its members are participating in two different STEM festivals this fall to use their skills and to promote computer science education. Additionally, a proposed lab curriculum for the dojo allows for the implementation of “after school” learning lab programs run in libraries, boys and girls clubs, and other student enhancement programs, in order to provide beginning computer programming instruction for students both in Iowa and around the country. The dojo also will provide a much-needed lab environment for UNI pre-service teachers in UNI’s Computer Science courses. Finally, the web-based system has been packaged for wider deployment; there have been ongoing discussions with several dojos about the use of the system to assist these organizations with their learning lab efforts.

**SIDDENS, PAUL, ASSOCIATE PROFESSOR, COMMUNICATION STUDIES, 22 YEARS OF SERVICE, SPRING SEMESTER**

*Adapting the Epic Poem Dante’s Inferno into a Contemporary Context for Live Theatrical Production as an Original New Play*

Involving three UNI Interpreters Theatre students, Professor Siddens conducted substantial research on *Dante’s Inferno*, its author, and its political, religious, economic context, as well as current social, cultural, political, economic, and environmental issues, in order to write a two-act original play (the second part of a trilogy) that refocuses the *Inferno* on current tensions between humans and technology. His play uses contemporary English, revised characters, and a greater gender balance to explore humankind versus the challenges of life today, the choices we make in our lives, and their impact on us. Professor Siddens’s project will benefit UNI student actors and technicians (including a UNI student who will direct one of the main stage productions) when the play is produced this fall via the UNI Interpreters Theatre. This play also provides the already nationally-known UNI Interpreters Theatre program with a cutting edge script, thereby maintaining the program’s reputation as competitive with the quality of the work done at Ph.D.-granting institutions. Further, the marketing of the play to outside theatres adds to the publicity regarding UNI faculty scholarship and creative activity.

**WALDRON, JENNIFER, ASSOCIATE PROFESSOR, SCHOOL OF HEALTH, PHYSICAL EDUCATION & LEISURE SERVICES, 10 YEARS OF SERVICE, SPRING SEMESTER**

*Exploring News and Social Media Constructions of Three Iowa Hazing Cases*

Professor Waldron studied how hazing and athlete discourses appeared in print news media and social media sites when they described three hazing cases that occurred on state of Iowa high school wrestling teams during 2011-12. Results from analysis of 234 articles and posts showed that reaction to the hazing, criminal charges, and zero tolerance were themes in print and digital media, with additional themes including details surrounding the hazing event, description of hazing behaviors, investigation into the hazings, statements of a hazing incident, and suggested outcomes of an incident. Print and social media’s discourse similarities and differences demonstrated the complexity in understanding hazing—and the challenges in

discussing hazing and working to prevent it. Professor Waldron will present the results of this study at the Association for Applied Sport Psychology in Indianapolis in October 2015. She has completed a book chapter on hazing in sport, which will be published late this fall. She will also use findings from this project while teaching courses in research methods, psychological skills for sport participants, and gender and sport. Professor Waldron further will be appearing as an expert in a documentary about hazing, which brings national attention to the university.

**ZHANG, JULIE, ASSOCIATE PROFESSOR, TECHNOLOGY, 8 YEARS OF SERVICE,  
SPRING SEMESTER**

*Bridge Theory and Industrial Project Application through Six Sigma Approach: Development of a Low-Cost Microcontroller-based Leakage Detecting System*

At the earliest phase in the manufacturing process it is preferable to detect leakage status, to avoid further assembly of hydraulic components with leakage faults. Although it is vital, quick and effective detection of leakages is not easy, however. Professor Zhang's study measured pressure signals to develop a hydraulic leakage detection system. This prototype system was then used to collect pressure decay data. Through statistical analyses it was concluded the system can capture and visualize the curve of pressure decay, and that there are two signals that can be used to quickly detect the status of hydraulic leakage components. The prototype hydraulic leakage detection system can be easily implemented in manufacturing shops to identify leakage faults. With a graduate student, Professor Zhang also conducted a Six Sigma project for service industries to improve the efficiency of the Math and Science tutoring unit of the UNI Learning Center. Professor Zhang submitted a manuscript based on part of this research to the *Journal of Advanced Manufacturing Systems* in September, 2015. She also presented part of the project at the Third International Conference on Lean and Six Sigma in High Education (June 8th and 9th, 2015) and the paper generated from this project has been published by the conference proceedings. She further will use her research in Advanced Manufacturing Processes, Statistical Quality Control, Technology of Productivity Improvement, and Total Quality Management courses, which can support students who pursue a Six Sigma certificate.