

Contact: Diana Gonzalez

PROFESSIONAL DEVELOPMENT ASSIGNMENT REQUESTS FOR FY 2015

Action Requested: Consider approval of the requests by the Regent universities for professional development assignments for FY 2015.

Executive Summary: Each year, the Board of Regents is asked to approve faculty professional development assignments as specified in Iowa Code §262.9(14) and Board Policy §4.09. For the 2014-2015 professional development assignments, the Board of Regents directed the public universities to limit the number of professional development assignments proposed to not more than three percent of the faculty staff members employed at each of the institutions. This requirement was met by the three universities – SUI (1.3%); ISU (2.0%); and UNI (2.4%).

For FY 2015, the universities request approval of 124 faculty professional development assignments; this is a decrease of 1 proposed professional development assignment from the prior year. The FY 2015 request represents 1.6% of all faculty at the Regent universities. A brief description of each proposed assignment is available in Attachments A-C (pages 6-44). This report addresses the Board of Regents Strategic Plan priority for “educational excellence and impact” and “economic development and vitality.”

**NUMBER OF PDA RECIPIENTS AND PERCENT OF TOTAL FACULTY
FY 2011 – FY 2015**

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
SUI	52 (2.4%)	58 (2.6%)	64 (1.3%)	65 (1.2%)	68 (1.3%)
ISU	37 (2.2%)	22 (1.4%)	29 (1.7%)	45 (2.5%)	37 (2.0%)
UNI	18 (3.4%)	15 (3.7%)	18 (2.2%)	15 (1.9%)	19 (2.4%)
REGENT TOTAL	107 (2.4%)	95 (2.2%)	111 (1.5%)	125 (1.6%)	124 (1.6%)

Background:

- ◆ Institutional policies. Each university has academic policies that describe the process and requirements for professional development assignments and which guide the selection of faculty proposed for professional development assignments.
- ☑ **University of Iowa.** Full-time faculty members with 9-month appointments who completed a minimum of 10 semesters of full-time academic service are eligible for an initial one-semester professional development assignment. Flexible load assignments may be included in the 10 required semesters at the discretion of the college. Part-time faculty members with 9-month appointments become eligible for a professional development assignment at the level of their appointment upon completion of a minimum of 10 semesters of part-time service. Part-time faculty members are eligible for a ‘regular’ professional development assignment when their portions of service equal the minimum requirement of full-time service. Twelve month faculty members who completed a minimum of four years of full-time academic service or the equivalent are eligible for the first professional development assignment of one semester; those who completed eight or 11 years of full-time academic service or the equivalent are eligible for a professional development assignment of up to two semesters or 12 months.

- ☑ **Iowa State University.** All members of the faculty employed half-time or more are eligible to apply for a professional development assignment. There is no restriction on length of service to qualify for a professional development assignment. However, priority may be given to tenured faculty over adjunct and non-tenured faculty and to persons who have not received a professional development assignment in the past five years.
- ☑ **University of Northern Iowa.** Policies and procedures relating to professional development assignments are defined in the United Faculty Master Agreement. Faculty members must be full-time and tenured at the time of application. A recipient of a professional development assignment is ineligible for a subsequent assignment during the three years following the assignment.
- ◇ **Review process.** The three universities report that 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.
- ◇ **Proposed activities.** Faculty members engage in a variety of productive activities during their professional development assignments. For example, faculty members have 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.
- ◇ **Length of assignments.** Professional development assignments are usually for one semester, although they may be granted for up to a year. For professional development assignments that are two semesters in length, compensation is limited to the amount of compensation a faculty member would receive during a semester-long assignment. Salary savings generated from faculty members on assignment for a full year are used to offset the replacement costs for other faculty members.
- ◇ **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.
- ◇ **Average number requested.** During the last five years, an average of 112 professional development assignments (PDAs) per year has been requested.
- ◇ **Value of professional development assignments.** The professional development assignments provide increased visibility and prominence of faculty and departments in research and scholarship; they also provide direct application of expanded knowledge to students, Iowans, the nation, and the world. Furthermore, professional development assignments allow recipients to compete successfully for external grants which benefit not only the professors and their programs but also the universities and the state.

- ◇ Faculty replacement costs. Estimates of the replacement costs for faculty members who are on professional development assignment are provided on the table below. For the recommended assignments, costs will be reduced, where possible, by having colleagues cover courses or deferring non-required courses to a later time.
 - ☑ The Faculty Scholars program at the University of Iowa, which also provides support for research expenses, is budgeted at \$5,500 for FY 2015 for one continuing Faculty Scholar. There are no new Faculty Scholars or new/continuing Global Scholars.
 - ☑ To the extent possible, ISU department chairs and deans provide flexible approaches to managing the workload and associated costs for the assignments, including reassignment or alternate scheduling of courses. Some PDA requests do not represent new costs because they are managed by the department through a reassignment of course load among current faculty. Salary savings generated from faculty members on assignment for a full year are used to offset the replacement costs for other faculty members.
 - ☑ At UNI, replacement costs are the responsibility of the college/department of the PDA recipient; no central funds are provided. In some cases, departments expect to increase class size or to decrease course offerings to cover the faculty members' reduced course load while on PDA. Some departments expect to hire adjunct faculty to be able to offer courses which students need to make academic progress in their program of study.

**BUDGETED REPLACEMENT COSTS
FY 2011 – FY 2015**

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
SUI	\$148,700	\$130,800	\$174,532	\$119,700	\$162,446
ISU	\$107,747	\$125,000	\$247,100 ¹	\$325,393 ²	\$131,433 ³
UNI	NA	\$166,483	\$87,000	\$65,000	\$145,000
REGENT TOTAL	NA	\$422,283	\$508,632	\$510,093	\$438,879

- ◇ Proposed professional development assignment recipients by gender.
 - ☑ There are 78 proposed professional development assignments for men; this represents 62.9% of the total proposed PDAs. Men represent 64.8% of the total number of eligible faculty.
 - ☑ There are 46 proposed professional development assignments for women; this represents 37.1% of the total proposed PDAs. Women represent 35.2% of the total number of eligible faculty.
- ◇ Proposed professional development assignment recipients by race/ethnicity.
 - ☑ There are 36 proposed professional development assignments for racial/ethnic minorities; this represents 29.0% of the total proposed PDAs. Racial/ethnic minorities represent 16.1% of the total number of eligible faculty.

¹ The expected replacement costs are \$338,900. However, seven faculty requests are for a full academic year which will generate \$91,800 in salary savings. Therefore, the net replacement cost is \$247,100.

² The expected replacement costs are \$551,750. However, five faculty requests are for a full academic year which will generate \$226,357 in salary savings. Therefore, the net replacement cost is \$325,393.

³ The expected replacement costs are \$403,563. However seven faculty requests are for a full academic year which will generate \$272,130 in salary savings. Therefore, the net replacement cost is \$131,433.

- There are 88 proposed professional development assignments for non-minorities; this represents 71.0% of the total proposed PDAs. Non-minorities represent 83.9% of the total number of eligible faculty.

**FY 2015 PROPOSED PDAs BY GENDER AND RACE/ETHNICITY
UNIVERSITY OF IOWA**

Race/Ethnicity	Total Number of Faculty			Total Number of Eligible Faculty			Number of Faculty Who Submitted an Application			Number of Faculty Proposed for Assignment		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Hispanic	71	49	120	30	20	50	2	2	4	1	2	3
Am. Indian/Alaska Native	10	12	22	2	3	5	0	0	0	0	0	0
Asian-Am.	225	94	319	110	27	137	10	4	14	9	3	12
Black/African Am.	45	47	92	17	15	32	2	4	6	2	3	5
Native Hawaiian/ Pacific Islander	2	0	2	0	0	0	0	0	0	0	0	0
Two/more races	8	9	17	6	5	11	1	0	1	1	0	1
Total Minority	361	211	572	165	70	235	15	10	25	13	8	21
White	2,175	1,621	3,796	903	432	1,335	31	18	49	29	16	45
Unknown R/E	395	325	720	19	2	21	1	0	1	1	0	1
Nonres. Alien/Intl.	172	71	243	8	2	10	0	1	1	0	1	1
TOTAL	3,103	2,228	5,331	1,095	506	1,601	47	29	76	43	25	68

**FY 2015 PROPOSED PDAs BY GENDER AND RACE/ETHNICITY
IOWA STATE UNIVERSITY**

Race/Ethnicity	Total Number of Faculty			Total Number of Eligible Faculty			Number of Faculty Who Submitted an Application			Number of Faculty Proposed for Assignment		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Hispanic	23	25	48	23	25	48	0	1	1	0	0	0
Am. Indian/Alaska Native	5	2	7	5	2	7	0	0	0	0	0	0
Asian-Am.	179	54	233	177	52	229	11	4	15	8	2	10
Black/African Am.	22	16	38	20	16	36	0	1	1	0	1	1
Native Hawaiian/ Pacific Islander	1	0	1	1	0	1	0	0	0	0	0	0
Two/more races	2	2	4	2	2	4	0	0	0	0	0	0
Total Minority	232	99	331	228	97	325	11	6	17	8	3	11
White	872	572	1,444	835	534	1,369	19	11	30	16	10	26
Unknown R/E	0	0	0	0	0	0	0	0	0	0	0	0
Nonres. Alien/Intl.	40	29	69	38	29	67	0	0	0	0	0	0
TOTAL	1,144	700	1,844	1,101	660	1,761	30	17	47	24	13	37

FY 2014 PROPOSED PDAs BY GENDER AND RACE/ETHNICITY
UNIVERSITY OF NORTHERN IOWA

Race/Ethnicity	Total Number of Faculty			Total Number of Eligible Faculty			Number of Faculty Who Submitted an Application			Number of Faculty Proposed for Assignment		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Hispanic	10	10	20	5	2	7	0	0	0	0	0	0
Am. Indian/Alaska Native	0	1	1	0	0	0	0	0	0	0	0	0
Asian-Am.	30	23	53	13	6	19	3	1	4	2	1	3
Black/African Am.	11	11	22	7	3	10	0	0	0	0	0	0
Native Hawaiian/Pacific Islander	1	0	1	1	0	1	1	0	1	1	0	1
Two/more races	4	4	8	2	1	3	0	0	0	0	0	0
Total Minority	56	49	105	28	12	40	4	1	5	3	1	4
White	360	336	696	191	135	326	11	9	20	8	7	15
Unknown R/E	0	0	0	0	0	0	0	0	0	0	0	0
Nonres. Alien/Intl.	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	416	385	801	219	147	366	15	10	25	11	8	19

FY 2014 PROPOSED PDAs BY GENDER AND RACE/ETHNICITY
REGENT TOTAL

Race/Ethnicity	Total Number of Faculty			Total Number of Eligible Faculty			Number of Faculty Who Submitted an Application			Number of Faculty Proposed for Assignment		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Hispanic	104	84	188	58	47	105	2	3	5	1	2	3
Am. Indian/Alaska Native	15	15	30	7	5	12	0	0	0	0	0	0
Asian-Am.	434	171	605	300	85	385	24	9	33	19	6	25
Black/African Am.	78	74	152	44	34	78	2	5	7	2	4	6
Native Hawaiian/Pacific Islander	4	0	4	2	0	2	1	0	1	1	0	1
Two/more races	14	15	29	10	8	18	1	0	1	1	0	1
Total Minority	649	359	1,008	421	179	600	30	17	47	24	12	36
White	3,407	2,529	5,936	1,929	1,101	3,030	61	38	99	53	33	86
Unknown R/E	395	325	720	19	2	21	1	0	1	1	0	1
Nonres. Alien/Intl.	212	100	312	46	31	77	0	1	1	0	1	1
TOTAL	4,663	3,313	7,976	2,415	1,313	3,728	92	56	148	78	46	124

- ◇ Average length of service. The average length of service for the proposed professional development assignment recipients is 14.4 years at SUI; 13.4 years at ISU; and 14.1 years at UNI.

- ◇ Proposed professional development assignments by rank. There are 59 (47.6%) proposed professional development assignments for professors; 64 (51.6%) for associate professors; and one (0.8%) for an instructor.

UNIVERSITY OF IOWA (*denotes Faculty Scholar)

ADAMS, LAFAYETTE B, ASSOCIATE PROFESSOR, ENGLISH, 18 YEARS OF SERVICE, SPRING SEMESTER

Title: New Daughters: The Transformation of Middle-Class Womanhood in the Gilded Age

For his PDA, Professor Adams will do research and writing for a chapter on the movement of middle-class young women into the U.S. workforce in the period 1865-1900. The chapter will be part of his book project on the changing roles of middle-class young women in the last decades of the nineteenth century. It will benefit students at the University by deepening Professor Adams's knowledge of the social status and labor history of women in the Gilded Age, topics that he frequently teaches in his courses. It will benefit the University and the broader society by enriching our understanding of an understudied, but crucial, aspect of U.S. women's history.

ANTHONY, JERRY, ASSOCIATE PROFESSOR, URBAN & REGIONAL PLANNING, 13 YEARS OF SERVICE, SPRING SEMESTER

Title: Housing Cost Burdens: When does a house cost too much?

Homeowners who spend a disproportionately large share of their income on mortgage payments and related housing costs may lack sufficient funds for expenses that are essential to a decent standard of living (such as healthcare, childcare and transportation). They are also at a higher risk of foreclosure. Using data from a national sample survey and housing cost information from four other countries, Professor Anthony will try to ascertain the maximum housing cost-to-income ratios that homeowners can afford without experiencing financial distress. His findings will inform new policies pertaining to mortgage financing (currently being prepared in the U.S. and in many other countries) that will make homeownership more sustainable. The research is expected to result in several journal articles. His findings will also be incorporated into two graduate courses that he teaches, thereby ensuring that his students are better prepared to serve communities in Iowa (and other states) upon graduation and employment as professional urban planners.

BARRAGAN, ELOY, ASSOCIATE PROFESSOR, DANCE, 8 YEARS OF SERVICE, FALL SEMESTER

Title: Dance for the Camera

Film provides an important outlet for dance that reaches broad, worldwide audiences. As a dance maker, Professor Barragan will use his PDA to embrace this technology in his teaching by studying "Dance on Film" during the summer and fall of 2014 in the University of Utah's Screendance Certificate Program. This program will give him the necessary knowledge to explore and develop different aspects of choreography for theater and film, enhancing his overall creativity. Upon completion of this certificate, he will create and develop a collaborative interdisciplinary program between the UI Department of Dance and the UI Department of Cinema and Comparative Literature. This will offer students the opportunity to get a minor in Dance for the Camera. Students will further their creativity as dance makers by understanding the endless ways to approach movement through the eye of the camera in courses such as: Screendance, Modes of Film and Video Production, Film/Video Production: Microcinema, and Video Production.

BECK, MARGARET, ASSOCIATE PROFESSOR, ANTHROPOLOGY, 6 YEARS OF SERVICE, FALL SEMESTER

Title: Pottery from Picuris Pueblo, 1600-1696

The seventeenth century was a turbulent period for Native Americans in the U.S. Southwest and adjacent regions, as Spanish colonization and military action created large numbers of Native refugees. In one relatively well-documented case in the northern Rio Grande valley of New Mexico, Picuris Pueblo residents fled northeastward to the Great Plains in 1696 and joined the Apache. During her PDA, Professor Beck will complete her analysis of seventeenth-century pottery from Picuris Pueblo, New Mexico, characterizing the manufacturing techniques, raw materials, and vessel forms and sizes. These data will be compared to data from archaeological sites in western Kansas and the surrounding region to identify the movement and influence of Picuris potters as they joined communities on the High Plains. The project will result in several journal articles and new material for Professor Beck's courses, public outreach efforts, and student research projects.

BECKERMANN, CHRISTOPH, PROFESSOR, MECHANICAL AND INDUSTRIAL ENGINEERING, 26 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. According to a recent report by the National Research Council, developing ICME is a grand challenge that could provide significant economic benefit and accelerate innovation in the engineering of materials and manufactured products. The PDA will allow Professor Beckermann to develop and validate a new ICME framework for metal castings. It will enable him to develop new collaborations and research projects with industry and government agencies interested in ICME. The planned exposure of University of Iowa engineering students to ICME concepts will greatly benefit their future careers.

*****BENNETT, JEFFREY A, ASSOCIATE PROFESSOR, COMMUNICATION STUDIES, 4 YEARS OF SERVICE, FALL SEMESTER**

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

Professor Bennett will complete research for his 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. Typically couched in a language of personal responsibility and enshrouded in a discourse of blame, diabetes is rarely treated as a symptom of systemic harms or as a communal ill that can be defeated collectively. This project is expected to create two book chapters about representations of diabetes and produce new material for Professor Bennett's undergraduate and graduate courses. The work is especially pertinent to citizens in the state of Iowa, where diabetes rates are increasing. The Iowa Department of Public Health reported that in 2011, about 42% of all Iowans had diabetes or pre-diabetes, a rate that has doubled since 1991.

BHATTI, M A, PROFESSOR, ENVIRONMENTAL ENGINEER, 33 YEARS OF SERVICE, FALL SEMESTER

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 has revised these class notes every other year the course is taught. The notes have evolved into a good working draft of a book on the subject. He is requesting this professional development assignment to allow him time to refine this draft so that it can be presented to a textbook publisher.

BORK, ROBERT, PROFESSOR, ART AND ART HISTORY, 15 YEARS OF SERVICE, FALL SEMESTER

Title: The untold story of Gothic architecture's demise

Professor Bork is applying for a PDA to complete a book on the demise of Gothic architecture, the main mode of building in Europe from roughly 1140 to 1540. The transition from Gothic to Renaissance buildings after 1500 was one of the most dramatic and consequential pivots in the history of architecture, but the topic has not received the attention it deserves. Instead, many scholars have treated this transition as natural and inevitable, while others have simply taken it as a background to their narrower investigations of particular buildings or patrons. Bork's book will be the first to explain systematically how the Gothic tradition succumbed to external factors including the Renaissance, the rise of centralized nation-states, and the Protestant Reformation. Bork's book project will contribute to the success of his students, both directly and indirectly. The project has already enriched his courses, especially his graduate seminars. Moreover, by enhancing Bork's national and international profile the project will add weight to the letters of recommendation he writes on his students' behalf, while also adding to the academic reputation of UI more generally.

BROWN, MATTHEW P, ASSOCIATE PROFESSOR, ENGLISH, 12 YEARS OF SERVICE, FALL SEMESTER

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

For his PDA, Professor Brown will work on his book, a monograph on colonial America titled *The Novel and the Blank: Textual Instruments in the Age of Franklin*. Book trades research sheds light on the mundane matter that makes up every day literacy, and literary critics attend to the imaginative dimensions of written works. Yet seldom are these approaches integrated. Through a study of eighteenth-century British America, *The Novel and the Blank* accounts for the aesthetic power of plain information. Professor Brown will discuss a continuum of textuality—from blank forms to literary narrative—wherein such genres socialized subjects of the nascent nation through the instrumentality of print formats. Professor Brown will draft and write the second chapter (“The Christian Century”). The project will inform his teaching at the undergraduate and graduate level, and it will benefit society by advancing our understanding of the colonial period.

BURER, SAMUEL, PROFESSOR, MANAGEMENT SCIENCES, 12 YEARS OF SERVICE, FALL SEMESTER

Title: Making Optimal Decisions Under Severe Levels of Uncertainty

Professor Burer's project for his PDA will investigate how businesses, non-profit organizations, and individuals can make optimal decisions even when facing severe levels of uncertainty. The planned work will span theoretical models, computer software, and real-world applications. Professor Burer will collaborate with several Singapore researchers, whose professional interests align well with the project. Scholarly outputs will include journal articles, software packages, and conference presentations, and Professor Burer will incorporate lessons learned from his research into three courses at the University of Iowa at the undergraduate, MBA, and doctoral 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.

CONNERLY, CHARLES, PROFESSOR, URBAN & REGIONAL PLANNING, 5 YEARS OF SERVICE, SPRING SEMESTER

Title: Book Project: Building Sustainable Cities and Towns in the Heartland through University-Community Partnerships

During his PDA, Professor Connerly will complete his book on building sustainable communities in Iowa through university-community partnerships. The book will be based on his five years of experience administering the Iowa Initiative for Sustainable Communities (IISC). IISC has developed into a significant arm of the SUI's community engagement and sustainability efforts. His book will focus on the sustainability challenges faced by Iowa communities, focusing on environment, economy, and equity - the three "E's" of sustainability. After reviewing these challenges, the book will examine and evaluate the specific sustainability challenges and responses in three Iowa communities - Charles City, Dubuque, and Cedar Rapids, reflecting as well on the impacts of IISC student projects in these communities. By showing how universities can improve communities while enhancing learning at Iowa's universities, the book will be a blueprint for similar programs in other SUI units and other universities generally.

DILG, JOHN, PROFESSOR, ART AND ART HISTORY, 38 YEARS OF SERVICE, FALL SEMESTER

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

This proposal is for the completion of 6-8 paintings based in landscape and furthering the relationship in Professor John Dilg's research between the hybridization of the 19th Century gothic and the Japanese aesthetic of Rinpa - in which art as natural design is marked by a bold graphic abbreviation of natural motifs. Of especial interest to this proposal is how the personal narratives that are based in romanticism can be ordered by the more formal naturalistic properties of Rinpa. The work Professor Dilg plans to accomplish will assist students as they comprehend a contemporary cultural climate in painting that values an inward, idiosyncratically-based viewpoint. Personal, often gothic narratives, in conjunction with the natural motifs of the Midwest, have elucidated life on the prairie for more than 150 years and this proposal seeks, in part, to contribute to a greater understanding of living in the Midwest through a confluence of individual identity and natural design as realized in a contemporary art statement.

DOORN, JONATHAN A, ASSOCIATE PROFESSOR, PHARMACY, 9 YEARS OF SERVICE, FALL SEMESTER

Title: The role of pesticides in neurodegenerative disease and neurotoxicity

The Professional Development Assignment (PDA) will allow Professor Doorn to learn new knowledge and skills to study the role of pesticides in neurotoxicity and neurodegeneration related to Parkinson's Disease (PD). He will work to determine the mechanisms via which environmental agents (i.e., pesticides) cause damage to cells in the nervous system, relevant to PD. New knowledge gained during the PDA will be shared with students at the University of Iowa. The training afforded Professor Doorn via the proposed work will generate scientific publications and presentations and new applications for funding opportunities. In addition, completion of the proposed work may identify new drug targets for PD and biomarkers for earlier disease diagnosis.

DUYS, DAVID K, ASSOCIATE PROFESSOR, REHABILITATION & COUNSELOR ED, 8 YEARS OF SERVICE, FALL SEMESTER

Title: The Development of a Tablet Based Career Exploration Application

Making an effective career choice is a major concern for high school and college students. Several career interest measures have been developed over the years that are highly specialized to address this problem, including interest inventories, values scales, anticipated barriers measures, and vocational card sorts. Dr. Duys will field test and refine a tablet based career interest application for public school students' use on the iPad. This free application will allow students to prioritize and sort virtual cards representing vocational interests via a touch screen interface to help them clarify their preferences. The conversion of this particular card sorting method follows 14 years of feedback and field testing of the original paper based items. The "app" will consist of a card sorting activity, an anticipated barriers questionnaire, and a visual map of competing interests. Results will provide students with resources for further career exploration, inform counselors' interventions, technologically prepare graduate students, and provide researchers with insights about the nature and struggles students have with vocational decisions, barriers, and competing goals.

FOLSOM, ED, PROFESSOR, ENGLISH, 37 YEARS OF SERVICE, SPRING SEMESTER

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

Professor Folsom will complete two books dealing with the American poet Walt Whitman. Walt Whitman's Leaves of Grass: The Biography of a Book will be the first full biography of Leaves of Grass, the most influential, complex, and problematic book (or set of books) in American bibliographical and literary history. Walt Whitman's "Song of Myself": The Trajectory of a Poem will be the first detailed analysis of all 52 sections of Whitman's epic poem, one of the key literary and cultural documents in American culture. Folsom has made Iowa one of the major centers of Whitman studies, and these projects will 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, ASSOCIATE PROFESSOR, ENGLISH, 12 YEARS OF SERVICE, SPRING SEMESTER

Title: Intangibles: Cultural Development in the Americas

During spring and summer 2015, Professor Fox will produce a scholarly article as a first step toward her third book on intangible culture and development in the Americas. The book will explore how aesthetic, anthropological, and corporate concepts of intangibility come together in diverse American locations to shape cultural policy and regional development. She will submit the article to a journal in her field. In addition, she will undertake preliminary research for other sections of this book and write grant proposals that will enable her to complete the remaining research for the book. She will revise one undergraduate syllabus in English on Visual Culture and Performance in the Americas and design a new undergraduate course for Spanish and Portuguese on Latina/o Visual Cultures, incorporating research conducted during the PDA period, and, thus, better preparing students for success in an increasing global work environment.

GENG, MAXWELL L, PROFESSOR, CHEMISTRY, 18 YEARS OF SERVICE, SPRING SEMESTER

Title: Superresolution Imaging of Fast Molecular Motions

During his PDA, Professor Geng plans to develop an advanced imaging technology to observe fast molecular motions in nanopores. Superresolution imaging provides pictures of biological structures at nanometer dimension and is currently one of the most exciting directions in biology research. The pictures, however, are static and there is a tremendous demand in watching fast molecular motions that control the functions of nanoporous materials and biological cells. Professor Geng will establish the fundamental principles of such a method and develop this advanced imaging technology to study nanoporous materials. The outcome of the project will be a state-of-the-art technology for chemical and biomedical sciences. Professor Geng will integrate the new insights of nanometer motions 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 of the State of Iowa and improve human health.

GETZ, CHRISTINE, PROFESSOR, MUSIC, 14 YEARS OF SERVICE, FALL SEMESTER

Title: A critical edition with historical introduction and commentary of Andrea Cima's IL SECONDO LIBRO DELLI CONCERTI (1627)

Using photographs of the extant part books and archival sources that she will examine in Milan, Professor Getz will prepare a critical edition with historical introduction and commentary of Andrea Cima's IL SECONDO LIBRO DELLI CONCERTI (1627), suitable for use by scholars and performers of early music. The resulting publishable edition will expand the current understanding of the small sacred concerto, an early seventeenth-century genre that is understudied in comparison to opera and secular song, by exploring the compositional contributions of Andrea Cima, one of seventeenth-century Milan's foremost organists. It will also investigate the relationship of the volume's content to liturgy and ritual at the Milanese church of Santa Maria della Rosa. Finally, it will illuminate aspects of Andrea Cima's currently elusive musical career by reconsidering the evidence found in the music prints within the context of the surviving archival documentation. Professor Getz will integrate the experience gained in editing this volume into the graduate course "Music Editing," as well as into her advising of the many graduate theses that include an editing component.

GIBLIN, JAMES L, PROFESSOR, HISTORY, 27 YEARS OF SERVICE, SPRING SEMESTER

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

Professor Giblin will use a PDA to complete historical research in Tanzania for a book on political dissidence in the 1960s. The book will be a biography of a dissident who was banned from political life because of his opposition to the institution of one-party rule. The purpose of the project is to challenge the view that democracy and human rights lack roots in African culture. The book will show that the experience of colonialism fostered interest in democracy and encouraged some anti-colonial activists to develop commitment to human rights. During the PDA, Professor Giblin will collect documentary sources as well as oral accounts which can be obtained only through extended field research in Tanzania. His work will enhance his undergraduate and graduate teaching by improving his ability to address growing student interest in the recent African history and issues of human rights in Africa. His courses benefit the state of Iowa because they are the only advanced instruction on African history at the University of Iowa.

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

Title: Fluid and Melt Evolution During Ultrahigh-Pressure Metamorphism of Continental Crust

Prof. Jane Gilotti is requesting a PDA to spend the 2014-2015 academic year at the University of Torino, Italy studying fluid and melt inclusions in ultrahigh-pressure (UHP) rocks from NE Greenland. The project is an outgrowth of current NSF funded research, aimed at building a pressure-temperature-time history for the formation and exhumation of continental rocks that have reached mantle depths during plate tectonic collisions. The goal is to use microscopic melt droplets trapped in metamorphic minerals to determine whether melting can trigger the exhumation of dense UHP rocks back to the Earth's surface. Mechanisms for exhuming UHP rocks are one of the least understood processes of collisional tectonics. The project will test the notion that melts can enhance transport of deeply buried UHP rocks to the surface. Gilotti will collaborate with Dr. Simona Ferrando, who runs a state-of-the-art analytical facility in Torino. This PDA will eventually benefit Gilotti's students who wish to include fluid/melt studies in their research, as well as expand the usage of the new electron microprobe lab being built in the Department of EES, University of Iowa.

GOLZ, SABINE I, ASSOCIATE PROFESSOR, GERMAN, 26 YEARS OF SERVICE, FALL SEMESTER

Title: Documentary Film "The Cantor of Swabia"

Prof. Gözl will edit her feature-length documentary film on the life and legacy of Richard Gözl (1887-1975). Known as "The Cantor of Swabia," Richard Gözl was an influential German church musician and pioneer of the international early music movement. He re-discovered major works of Renaissance music, transformed the repertoire of German Protestant church choirs, and pioneered the re-discovery of Gregorian chant. During the Nazi years, he hid Jews and was imprisoned. For this, he is commemorated in Yad Vashem, in Berlin, and the Holocaust Museum in Washington. After 1945, he became a Russian Orthodox priest and left Germany to emigrate to Milwaukee. His story is known only to a few experts, and this film will bring it to international audiences for the first time. It is expected to screen at major film festivals, museums, and educational institutions, and to achieve international visibility. It will be suited for instructional use in university classes on music history, ethics, international studies, the history of Nazi Germany, and German-American emigration. Post-production funding has been requested from the NEA and from Steven Spielberg's Righteous Persons Foundation.

HAES, AMANDA J, ASSOCIATE PROFESSOR, CHEMISTRY, 7 YEARS OF SERVICE, FALL SEMESTER

Title: Improving the Effectiveness of Disease Treatment Options using Nanotechnology

Professor Haes will apply and expand her research expertise in nanomaterials and spectroscopy to applications to the development of novel pain assessment methods. Her goals will include the collection of preliminary data, the establishment of connections with pain experts at the University of Iowa Hospitals and Clinics, and the submission of proposals to a variety of grant agencies including the National Institutes of Health and Department of Defense. The grants will benefit students at the University of Iowa by providing research opportunities. The PDA work will benefit society by adding to our understanding of pain and pain management.

HAYES, JOY, ASSOCIATE PROFESSOR, COMMUNICATION STUDIES, 19 YEARS OF SERVICE, FALL SEMESTER

Title: New Media in Historical Perspective: Rethinking U.S. Radio Audiences and Institutions

During her PDA, professor Hayes will study by examining media history and the historical contexts that shape, and are shaped by, new media technologies. Professor Hayes will focus on three projects that examine the "new" medium of radio broadcasting in the 1930s as a means of understanding how audiences become active and critical media users, and how centralized media institutions react to challenges from non-commercial and regional media producers. The first project looks at New Deal government broadcasting activities during the late 1930s and explores the constraints they placed on national network institutions. The second project examines the efforts made by government broadcasters to cultivate active audiences and respond to listener requests. The third project investigates how regional network broadcasters in the Southwest U.S. promoted an alternative to national networks programming that constructed a sense of place based on cultural fragmentation and social mobility. This work will be used by Professor Hayes in class and will be of interest to anyone who wants to better understand the historical roots of new media.

HETTMANSPERGER, SUE E, PROFESSOR, ART AND ART HISTORY, 36 YEARS OF SERVICE, SPRING SEMESTER

Title: "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. Professor Hettmansperger will incorporate the use of digital image manipulation and repeated iterations in painting to 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 environmental concerns. Emblematic visual configurations in her paintings will present the disjunctive ethos of our time, where boundaries between organisms are increasingly blurred and new visual territory is formed. The series of paintings will embody the themes of cultural production and the environment, as some of the most vexing problems society faces in an uncertain future. This Professional Development Assignment will result in a painting series that will be exhibited in New York and Iowa, and will serve as a teaching model for undergraduate and graduate students at the UI.

HILL, LENA M, ASSOCIATE PROFESSOR, ENGLISH, 7 YEARS OF SERVICE, SPRING SEMESTER

Title: Writing for Rights

Professor Hill's PDA project examines how African American literature paved the way for the U.S. civil rights movement. From the early twentieth century through the 1950s, black writers published texts that advanced national conversations critical to the success of the struggle for racial equality. Building on her expansive research analyzing African American writers' dependence on visual culture to revise popular ideas of black character, she will examine how literary portrayals of black citizens' pursuit of the American Dream shape political discussions of national identity. Her research will lead to a book. Professor Hill will also incorporate her scholarship into two newly developed courses at the undergraduate and graduate level with the goal of teaching students the impact of literary production on political realities.

HILL, MICHAEL, ASSOCIATE PROFESSOR, ENGLISH, 7 YEARS OF SERVICE, FALL SEMESTER

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

During his PDA, Professor Hill will draft two chapters of a book about adolescent protagonists in African American novels. The chapters will focus on the 1950s and will explore how these works' depictions of the conflict between youth and their elders signal a telling crisis in black self-definition. Examining this crisis via education, sex, and work, Prof. Hill will consider how concerns about exemplarity, restraint, and safety that guided older African Americans under Jim Crow are first rejected and then revised as younger blacks shape post-segregation outlooks on democracy. He believes that this trans-generational wrangling begets modern black citizenship. Through his writing, Prof. Hill will strengthen an undergraduate course that he teaches on American adolescence and will develop a graduate seminar that focuses on civil rights in late 20th and early 21st century American life. His research engages a growing interest in mid-20th century America, and representatives from Rutgers University Press and Ohio State University Press have already expressed an interest in his project.

HOLLINGWORTH, ANDREW R, PROFESSOR, PSYCHOLOGY, 11 YEARS OF SERVICE, SPRING SEMESTER

Title: cognitive neuroscience techniques for the study of vision, memory, and attention

Professor Hollingworth will expand his research program during his PDA by developing techniques for understanding the human brain mechanisms of visual perception, attention, and working memory. The professional development assignment will be used to gain expertise in research methods that measure the electrical activity of the brain. In addition, Dr. Hollingworth will implement these techniques in a set of initial experiments that will be reported at conferences and within journal articles. This project reflects a growing trend in visual perception research toward the use of neural data. It will allow Dr. Hollingworth to remain at the cutting edge of his field, it will contribute to society in general by furthering our basic understanding of human brain function, it will contribute to the teaching mission of the University of Iowa through the inclusion of additional neuroscience content in Dr. Hollingworth's courses, and it will enhance the training of graduate students in Dr. Hollingworth's laboratory by expanding their set of available research techniques.

HOLLINGWORTH, LIZ, ASSOCIATE PROFESSOR, EDUCATION POLICY & LEADERSHIP STUDIES, 7 YEARS OF SERVICE, SPRING SEMESTER

Title: Leadership for Social Justice: Educating Iowa's African-American Boys

African-American males are over-represented in Iowa's special education classes and behavior disorder programs, and under-represented in gifted and advanced academic programs. In response, school leaders across Iowa are implementing programs designed to close this gap. For her PDA, Professor Hollingworth will do a comparative effectiveness study of many of these programs. This will help schools design the best programs for their needs. Her work will also benefit students, many of whom will soon be teaching in schools with achievement gaps.

HOUSTON, DOUGLAS W, ASSOCIATE PROFESSOR, BIOLOGY, 9 YEARS OF SERVICE, SPRING SEMESTER

Title: Mechanisms of axis formation and regeneration

The proper localization of maternal gene products in the egg is essential for asymmetric gene activation and body axis formation in the early vertebrate embryo. This has been well studied in *Xenopus* eggs, where asymmetry is established by dorsally-directed rotation of the egg cortex. This process requires organization and alignment of microtubules and ultimately results in the localized activation of Wnt/ β -catenin signaling. Despite many decades of study, the molecular mechanisms controlling cortical rotation remain unknown. During this PDA, Professor Houston will travel to a leading lab to learn advances live imaging of the cytoskeleton to quantitatively analyze cortical rotation at the molecular level. In parallel, Professor Houston will also learn the use of *Clytia hemisphaerica* for comparative studies of early Wnt signaling and for use in undergraduate teaching as a model of regeneration and transdifferentiation. This PDA will enhance research and teaching at the University and benefit the community by helping create an educated workforce in regenerative medicine and allowing opportunities for public outreach in this area.

JANZ, KATHLEEN F, PROFESSOR, HEALTH & HUMAN PHYSIOLOGY, 22 YEARS OF SERVICE, SPRING SEMESTER

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

Physical activity improves bone strength and reduces the risk for osteoporotic fractures. However, there are substantial gaps in our knowledge as to when, how, and how much activity is optimal for bone health. Difficulties in accurately measuring activity and imaging bone are major factors in the lack of understanding of the cause-effect relationships between activity and strength. Using a cohort of 470 adults (age 19) who have been followed since age 5, this project will create developmental pathways of objectively-measured activity from childhood to young adulthood to identify the amount and pattern of activity that predict strong bones. 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. As an aging state, Iowa suffers a disproportionate burden of these fractures. This Professional Development Assignment will contribute to Professor Janz's teaching responsibilities in courses addressing physical activity and health outcomes.

JAY, LAURENT O, PROFESSOR, MATHEMATICS, 15 YEARS OF SERVICE, HALF TIME FOR ONE YEAR

Title: Theory and numerical solution of differential equations

During his PDA Professor Laurent O. Jay will work on a book on the theory and numerical solution of differential equations. Such equations can describe and model a multitude of phenomena, processes, and applications in science and engineering. The proposed project aims to develop more efficient methods to approximate the solution of various problems involving differential equations. The resulting book will be used in graduate courses on differential equations, helping to prepare math students for successful careers.

KETTERER, ROBERT C, PROFESSOR, CLASSICS, 25 YEARS OF SERVICE, FALL SEMESTER

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

Professor Ketterer will do archival and historical research to write a book about the ways seventeenth- and eighteenth century operas used stories from Greek and Roman history as metaphors for the interactions between Europe and the Ottoman Empire. The project synthesizes arts and humanities to discuss historical questions in East-West relations that continue to impact us today. The results of the PDA will be basic research for the book, a chapter draft and a prospectus to send to publishers to bid for a book contract. This research will aid the development of a general education class in Communication and Literacy titled "Reading the Ancient City." It will support Ketterer's graduate courses in Latin literature and ancient drama, and his community outreach work through the UI Opera Studies Forum.

KHANDELWAL, MEENA R, ASSOCIATE PROFESSOR, ANTHROPOLOGY, 10 YEARS OF SERVICE, SPRING SEMESTER

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

Professor Khandelwal will focus on writing her book *Cooking with Fire: Feminist Anthropology, Engineering, and Solar Cookers*. Three billion people worldwide cook with firewood, and it is primarily women and children who collect wood and suffer respiratory illness from burning it. This project focuses on a region of India facing alarming rates of deforestation, where women trek long distances to cut wood. It asks why they have declined to adopt solar cookers that might free them from this labor, improve health, and save forests, and it shows why technological design must consider gender and culture. This project is also a model for collaboration both across disciplines and among academics, NGOs, and people who depend on forests for their livelihood. It is not only exemplary in its (global) public engagement but also seeks better integration of research and teaching. Professor Khandelwal will incorporate her work into her teaching. Students will learn that collaboration is necessary for solving problems of sustainability, thus helping them serve Iowa and society generally when they graduate.

KLETZING, CRAIG, PROFESSOR, PHYSICS AND ASTRONOMY, 17 YEARS OF SERVICE, FALL SEMESTER

Title: Study of Magnetospheric Science Using NASA Spacecraft

The proposed PDA is to continue and expand Professor Kletzing's role as a lead investigator on three NASA-funded space science missions: the Van Allen Probes mission, the Magnetospheric Multiscale Mission (MMS), and the Cusp Alfvén and Plasma Electrodynamics Rocket (CAPER) mission. These three missions form the core of Professor Kletzing's current research, and, the last two, MMS and CAPER, will be launched into space in Fall of 2014, making this a very

exciting time for exploring the science of these missions. The PDA will enable Professor Kletzing to undertake the needed academic work to prepare for the new missions and continue work for the future Van Allen Probes. His work on the projects will enhance his teaching at both the undergraduate and graduate level.

KRISHNAMURTHY, MUTHUKRISHNAN, ASSOCIATE PROFESSOR, MATHEMATICS, 7 YEARS OF SERVICE, FALL SEMESTER

Title: Converse Theorems

Professor Krishnamurthy proposes to spend Fall 2014 on a PDA at Bristol University in the UK to work with his collaborator Professor Booker on several projects that are currently in early or middle stages of development. The proposed research is concerning the theory of L-functions. The most familiar and well-known example of a L-function is the Riemann zeta function which gives precise information about prime numbers. In general, L-functions encode deep arithmetic information, and the so-called Converse Theorems serves as a vehicle for extracting such information. In the past couple of years, Professor Krishnamurthy (with Professor Booker) has obtained versions of Converse Theorems when the L-functions in question are of a certain kind. He will continue to work with Professor Booker and further develop their program on Converse Theorems to include all the relevant L-functions. The proposed PDA will result in multiple publications, enhance the graduate program of the department by attracting international students, and help advance his doctoral student's research on related topics. The PDA will also provide increased visibility for UI as well as the state of Iowa.

KROKHMAL, PAVLO, ASSOCIATE PROFESSOR, MECHANICAL AND INDUSTRIAL ENGINEERING, 8 YEARS OF SERVICE, SPRING SEMESTER

Title: Advanced optimization methods for design of mechanical systems and materials

The main goal of Professor Krokmal's PDA is to develop new theoretical and computational methods for design and optimization of complex "smart" materials and systems that will be based on the highly advanced, state-of-the-art optimization techniques and approaches, which were developed within the disciplines of operations research and mathematical programming primarily for optimization of industrial systems. The proposed methodology is based on the methods of semi-definite optimization and PDE-constrained optimization. This project will result in exchange and cross-pollination of ideas and research approaches between the fields of mechanical, aerospace engineering, material science and the disciplines of operations research and mathematical programming. During this PDA Professor Krokmal will develop a new research program in the area of optimization of physical, mechanical, and materials systems. In addition, this project will result in initiating new in-state, national, and international collaborations, and will make a contribution to graduate curriculum of the College of Engineering.

LANG, CORNELIA, ASSOCIATE PROFESSOR, PHYSICS AND ASTRONOMY, 11 YEARS OF SERVICE, SPRING SEMESTER

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

During her PDA, Professor Lang will carry out new observations of the magnetic field in the central regions of our Milky Way Galaxy. Upgraded radio telescope facilities in Australia will provide longer and more direct views of the Galactic Center region than can be obtained in North America. The magnetic field in this unique region is believed to more complex and perhaps several orders of magnitude stronger than in the environment in the outer Milky Way, near the Sun. Therefore, understanding magnetic fields in the central regions of galaxies has

important implications for understanding the overall energy balance (including transport of materials in outflows) in the interstellar medium in galaxies. Advances in understanding of our Galactic center will be conveyed to the public in outreach programs and observing sessions. Through productive collaborations with Australian astronomers, the project is expected to result in new observations of the center of the Milky Way galaxy, scientific journal articles and presentations, and experience with state-of-the-art radio astronomy techniques that will supplement the curriculum of our undergraduate and graduate observational astronomy courses.

LANG, JOSEPH B, PROFESSOR, STATISTICS & ACTUARIAL SCIENCE, 21 YEARS OF SERVICE, FALL SEMESTER

Title: Improved Estimation of Causal Effects

Professor Lang's PDA project is concerned with developing statistical procedures designed to improve estimation of causal effects using data from comparative designed experiments. From a policy perspective, these procedures will give improved estimates of the comparative effectiveness of intervention programs. Professor Lang also will develop a modeling framework that addresses deficiencies in the current literature on causality. This framework affords answers to several important questions and promotes careful consideration of model assumptions and targets of inference. Tangible products from this project will include scholarly articles, publicly-available estimation software, and chapters for a book. Professor Lang will incorporate these project results into several courses that he is teaching and a book he is writing. With the explosion of data availability, the development of methods for measuring causal effects is more important than ever. Students, policy makers, and the general public will benefit from Professor Lang's research on causality.

MALANSON, GEORGE P, PROFESSOR, GEOGRAPHICAL AND SUSTAINABILITY SCIENCES, 27 YEARS OF SERVICE, SPRING SEMESTER

Title: Biogeographic response to climate change

The Global Observation Research Initiative in Alpine Environments (GLORIA) program records mountaintop vegetation in order to assess impacts of global climate change. On his PDA, Professor Malanson will evaluate GLORIA data from Europe, where the network is densest, in terms of the spatial pattern of change relative to other alpine vegetation and environmental variation derived from libraries and data repositories. By examining the spatial pattern in context, underlying processes in the response of mountaintop vegetation to climate change will be revealed. Professor Malanson will collaborate with colleagues at the GLORIA. The GLORIA sites were established worldwide at considerable expense, and this PDA will make these data more valuable and guide future monitoring and mitigation. This PDA study will be incorporated in the class Biogeography (GEOG:2374 and BIOL:2374) so that students will work directly with data and do their own analyses, gaining hands-on experience and insights to enhance their careers.

MCCLELLAND, BILL C, PROFESSOR, EARTH AND ENVIRONMENTAL SCIENCES, 5 YEARS OF SERVICE, FALL SEMESTER

Title: U-Pb geochronology applied to ultrahigh-pressure metamorphism and tectonic evolution of the Arctic

Professor McClelland has produced a significant body of geoscience age data through National Science Foundation-funded projects in Arctic regions over the past decade. He is now in a position to publish summary articles that address two fundamental issues in Geosciences: ultrahigh pressure metamorphism in continental collision zones and the tectonic evolution of the Arctic. Professor McClelland has been invited to submit a review article that places his work in Greenland in a global context. The second project will involve comparison of age data from sedimentary sequences around the Arctic in order to define the tectonic evolution of the Arctic margins. The PDA effort will result in three high profile publications. The new perspectives gained on tectonic processes in collisional belts and the Arctic will lead to new research directions and proposals as well as generate teaching material for Professor McClelland's undergraduate and graduate classes.

MENDEZ, ADRIANA, PROFESSOR, SPANISH AND PORTUGUESE, 28 YEARS OF SERVICE, FALL SEMESTER

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

During her PDA, Professor Mendez will complete her book on ecocriticism, *From Paradise to Diaspora: Natural History in the Americas*, that examines two earthly Paradises—the Caribbean and the Amazon—that are linked historically as well as geographically. The book begins with eighteenth-century scientific explorers who describe archipelagos and tropical forests through empirical and sensory data, establishing a view of the tropics that resonates even today. It will then turn to nineteenth and twentieth century fictions that revisit these same sites. Focusing on natural history exploration written in Spanish, French, and English, Professor Mendez will show what these literary re-enactments teach us about renewing our connection with nature. The book fosters a meditation on the vital importance of tropical sites in our world. Professor Méndez Rodenas teaches two related courses: "The Tropics in the Caribbean and Spanish American Imagination" and "Fictions of Travel in Latin America." A Professional Developmental Assignment will allow time to finish this book and develop a new course on "Literature and Ecology."

MENTZER, RAYMOND A, PROFESSOR, RELIGIOUS STUDIES, 12 YEARS OF SERVICE, FALL SEMESTER

Title: Material Culture and Spiritual Practices among French Protestants

The role of material mediations in the spiritual life of the Christian faithful was a fiercely contested issue throughout the Reformation of the sixteenth and seventeenth centuries. The Calvinist understanding, which located religiosity in a spiritual universe independent of time and the material world, was among the most recognizable. Yet this view never meant a complete abandonment of material representations. Even strict Calvinists could not avoid texts and objects in their devotional activities. What then were the physical forms and artifacts associated with early Protestantism, especially in France? More importantly, how did ordinary members of the congregation understand them? During his PDA, Professor Mentzer will use the extensive records of the French Protestant Churches to examine the matter. The goal is to write a journal article, which in turn will become the first chapter of a book. The project will also contribute significantly to his courses on the History of Christianity and, in the process, help students to understand and appreciate the contributions of various religious traditions to modern and contemporary culture.

MEURICE, YANNICK, PROFESSOR, PHYSICS AND ASTRONOMY, 23 YEARS OF SERVICE, SPRING SEMESTER

Title: New Directions in Computational High Energy Physics

Professor Meurice is a theoretical physicist working on strong interactions and mass generation for elementary particles using a method called lattice gauge theory. Recent work at the Large Hadron Collider (LHC) has led him to move in new research directions related to finding new particles and interactions at the LHC and to designing atomic physics systems (called optical lattices) behaving as theoretical models used in lattice gauge theory. He will visit two National Laboratories (Fermilab and Argonne) for extended periods of time in order to develop large scale computations at their facilities. He will also visit a collaborator in Kobe University (Japan) and Laboratories where experiments on optical lattices are performed, at Penn State University, and Hamburg University (Germany). The result will be the submission of five grants due between March and November 2015 for a total requested amount of approximately \$800,000. The research will also provide new material for several physics courses and will involve graduate students, contributing significantly to their training and careers.

MILLS, MARGARET H, PROFESSOR, ASIAN AND SLAVIC LANGUAGES AND LITERATURES, 24 YEARS OF SERVICE, SPRING SEMESTER

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

Professor Mills will complete research on ten essays which will comprise a book. Each essay is based on transcribed Doctor-Patient interviews recorded in Russia (with English translations), for which Mills will offer both linguistic analyses and pragmatic commentary. The book's findings will propose new directions for future research in cross-cultural communication in medical settings. The project will contribute new cultural perspectives to the growing body of literature on Doctor-Patient Discourse and its impacts on achieving "best practices" in the diverse populations of both US doctors and patients whose first language is not English. The monograph's primary audience is sociolinguistics and cross-cultural discourse analysts, medical anthropologists and sociologists, and Russian linguists. A broader readership is intended to include practicing physicians and health care workers, medical interpreters, hospital administrators and the general reading public interested in communication challenges across large cross-sections of U.S. public discourse. She will also use material from the book in her classes.

MITCHELL, COLLEEN C, ASSOCIATE PROFESSOR, MATHEMATICS, 8 YEARS OF SERVICE, FALL SEMESTER

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

The contraction of cardiac muscle tissue is initiated by electrical impulses known as action potentials. These signals are modulated through beta-adrenergic stimulation as part of the stress response. During the PDA, Dr. Mitchell will complete two related research projects aimed at understanding the beta-adrenergic response in both healthy and diseased cardiac tissue. The first will focus on a new class of mathematical models to investigate the role of caveolar current in the stress response. The second will incorporate spatial heterogeneity into a model of the sinoatrial node pacemaker cells whose firing rate is increased by beta-adrenergic stimulation. Analysis and simulation of these models will give insight into the complex interactions central to our understanding of diseases such as cardiomyopathy and Long QT Syndrome. Dr. Mitchell will also attend three week-long workshops at the Mathematical Biosciences Institute focused on the theme of mathematical modeling of cancer. She will use these workshops as a basis to create two new computer activities for Engineering Math II and two new modules for an advanced course in Mathematical Biology.

MORDKOFF, JONATHAN T, ASSOCIATE PROFESSOR, PSYCHOLOGY, 6 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 United States every year. Attempts to reduce distracted driving by both legislation and education have not been very successful. As a new approach to this problem, Professor Mordkoff's PDA project seeks to discover the specific reason why distractions cause driving impairments. Dr. Mordkoff's longer-term goal is the development of technical innovations that could reduce the effects of distraction, such that distracted drivers are less of a danger to themselves and others. Some preliminary work on this issue has already been done. Professor Mordkoff's project will test his current explanation of the effects of distraction on driving in a realistic (but safe) environment, using the University of Iowa's National Advanced Driving Simulator. His work will also be incorporated into his teaching.

*****MORPHEW, CHRISTOPHER C, PROFESSOR, EDUCATION POLICY & LEADERSHIP STUDIES, 4 YEARS OF SERVICE, HALF TIME FOR ONE YEAR**

Title: Building Organizational Capacity in Croatian Higher Education

Professor Morphew is applying for a PDA for 2014-15 to conduct research and observe and participate in classroom exercises at several universities in Croatia and the Institute for the Development of Education (IDE) in Zagreb, Croatia. The PDA will also allow Professor Morphew to observe and provide professional development to administrative staff at these universities and the IDE in Zagreb. In addition, he will collaborate on several research projects with IDE staff. These projects will examine issues of access and funding in the Croatian higher education system. This PDA will enhance Professor Morphew's understanding of and research on international higher education issues, which will enable him to better advise and teach SUI students who seek management positions in higher education. In addition, his research and experiences will allow him to develop a new graduate-level course on international topics in higher education.

*****NGUYEN, HIEN M, ASSOCIATE PROFESSOR, CHEMISTRY, 4 YEARS OF SERVICE, SPRING SEMESTER**

Title: Development of New Strategies for Medical Imaging

Positron emission tomography (PET) is one of the most rapidly growing areas of medical imaging and has been widely-used clinically in diagnosis of cancers, cardiovascular diseases, and early stage neurological disorders. Because PET provides quantitative physiochemical information, it requires imaging agents labeled with positron-emitting radionuclides. Fluorine-18 is regarded as an ideal PET radionuclide for producing high quality of 3D images, ease of preparation from [18O]-water, and good half-life. Despite these advantageous features, techniques for the rapid fluorine-18 incorporation into target molecules remain elusive. During his PDA, Dr. Nguyen proposes to address this problem by developing new strategies which allow rapid and efficient incorporation of fluorine-18 into bioactive compounds via transition metal catalysis. Benefits of the projects are: 1) involvements of undergraduate and graduate students in research; 2) communications of the results in the organic chemistry course that Dr. Nguyen teaches; and 3) potential development of PET scans to detect human diseases early before any evidence can be found using biopsies, MRI scans or CT scans.

***ONWUACHI WILLIG, ANGELA, PROFESSOR, LAW, 7 YEARS OF SERVICE, FALL SEMESTER (CONTINUING)**

Title: According to our hearts: Lessons on race, family and law from Rhinelander V. Rhinelander
In the book project for this PDA, Professor Onwuachi-Willig explores the past and present social and legal meanings of Rhinelander v. Rhinelander, an annulment case which was filed on the grounds of racial fraud. The project exposes how law and social norms continue to function together to frame the normative ideal of family as monoracial. This project will sharpen the professor's teaching in Family Law, which increasingly must address multiracial identity and family topics, and will enhance two course segments in Critical Race Theory. The book will result in significant press for the University and the state. In developing promotional materials, Yale University Press, which will publish the book in 2013, refers to the project—the first comprehensive analysis of “the law of the multiracial family—as a “landmark book.” The book already is the focus of issues for two separate law journals. The professor has accepted invitations to present on the book.

PARK, SOONHYE, ASSOCIATE PROFESSOR, TEACHING AND LEARNING, 7 YEARS OF SERVICE, FALL SEMESTER

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

Professor Park will conduct a cross-cultural validation of a new measure of science teachers' Pedagogical Content Knowledge (PCK) that she has developed and validated for past five years in the US. She will examine if the measure yields similar results in three other countries with different educational and sociocultural contexts: Germany, Korea, and South Africa. The completion of this project will result in: 1) a PCK measure with adequate evidence for cross-national validity and reliability, 2) a grant proposal to examine the relationship between teacher PCK scores and student achievement, and 3) a manuscript for publication. 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 project will enable researchers to quantitatively examine the critical relationship between PCK and variables associated with student learning, and further to make large impact on educational policies and teaching and learning of science. Professor Park will also use her research to improve her course content.

PEMMARAJU, SRIRAM V, PROFESSOR, COMPUTER SCIENCE, 13 YEARS OF SERVICE, FALL SEMESTER

Title: Distributed Algorithms for Epidemic Models

Prof. Pemmaraju plans to use the PDA to initiate research into the design of fast distributed algorithms for the computation of static characteristics of epidemic models. Epidemic models are mathematical models used to predict the spread of disease in a population. A distributed algorithm is one that runs in a distributed fashion on many different computers. Fast distributed algorithms for epidemic models will make disease-spread predictions easier, at least from a computational point of view. The project is expected to result in conference and journal publications, a grant proposal to the National Science Foundation, and new course material for a graduate course.

PORTER, HORACE A, PROFESSOR, ENGLISH, 14 YEARS OF SERVICE, FALL SEMESTER

Title: Writers in the Ring: American Writers on Boxers

During his PDA, Professor Porter will do further research and write the introduction and one chapter of his new book, *Writers in the Ring: American Writers on Boxers*. The book will be ideal for use in American Studies and Sport Studies classes at Iowa and other universities that focus on race, nationality, and sport. It will also be of interest to sports writers generally. Porter's introduction will include a discussion of boxing in the 20th century and references to the writers James Baldwin, Joyce Carol Oates, Richard Wright, and Norman Mailer. In his first chapter, Porter will provide a literary and cultural analysis of Floyd Patterson, heavyweight champion, civil rights activist, and reluctant celebrity. The remaining chapters will cover individual writers on specific heavyweight champions: Richard Wright on Joe Louis; Norman Mailer on Muhammad Ali; Joyce Carol Oates on Mike Tyson. In his conclusion, Porter will discuss new scholarly books on boxing. And given the neurological damage many boxers sustain, Porter will also address many doctors' disapproval of "the hurt business."

POULAKOS, P T, ASSOCIATE PROFESSOR, RHETORIC, 23 YEARS OF SERVICE, FALL SEMESTER

Title: The Performative Character of Self-display Speeches

On his PDA Professor Poulakos will be completing a book on ancient speeches that the first teachers of rhetoric delivered to the Athenians as ways of displaying their competence with teaching effective speaking in the democratic assembly and the courts. Dismissed as trivial and theatrical self-displays, these speeches are re-examined by Poulakos as significant acts of performance that initiate an interactive encounter with audiences that enables speakers and auditors to give new meaning to their social relations and thereby to improve the nature of their democracy. The expected outcome of the PDA is the completion of this manuscript and its submission for publication. The publication of this manuscript is expected to strengthen the required course for first year students at the SUI—especially as it concerns the potential relation that speech-making has to affecting social relations in the direction of equality. It is also expected to make citizens of this society rethink the ways through which speaking in public is inextricably connected to our perceptions and understandings of the social.

RAGHAVAN, MADHAVAN L, PROFESSOR, BIOMEDICAL ENGINEERING, 13 YEARS OF SERVICE, FALL SEMESTER

Title: Medical device design and biomechanics research through international collaborations

Professor Raghavan teaches and performs research in the interdisciplinary field of biomedical engineering. For his PDA, he proposes to develop new international collaborations and leverage existing ones to enhance his research and teaching. Specifically, one aim is to visit with and explore new collaborations with colleagues in India on the design and development of low-cost medical technologies suitable for the developing world. A second aim is to work toward the development of novel experimental techniques for the study of aneurysms - a cardiovascular disease - in collaboration with my colleagues in Brazil. It is anticipated that these efforts will add new international depth to his research and allow Professor Raghavan to leverage new funding opportunities for research. It will also result in the development of a manuscript and enhance some of the courses he teaches at the undergraduate and graduate levels.

REISINGER, WILLIAM M, PROFESSOR, POLITICAL SCIENCE, 28 YEARS OF SERVICE, FALL SEMESTER

Title: Subnational Public Opinion and Russia's Political Future

How does Russia's political regime, which rests on the personal power of Vladimir Putin, maintain control over its vast and varied territory? During his PDA, Professor Reisinger will investigate this by creating a unique databank of Russian public opinion at the subnational level. While many surveys of Russia-wide opinion are available, it is vital to know how Tomsk differs from Omsk—and both from Moscow. Scholars cannot learn this from polls with national samples, and only a very few of Russia's regions have been surveyed directly. Using recently developed techniques, Reisinger will create reliable regional estimates of how Russians view their government and who acts on their views. Analyzing these data will lead to a series of articles. His activities will inform courses he regularly offers on Russian politics, democracy and authoritarian politics. The data will be a resource for undergraduate and graduate students at Iowa. His analyses will address two important public-policy issues: 1) how and why countries democratize or, as in Russia's case, slip into authoritarianism; and 2) the prospects for the Putin regime itself to democratize.

RYANG, SONIA, PROFESSOR, ANTHROPOLOGY, 7 YEARS OF SERVICE, SPRING SEMESTER

Title: North Korea: In Search of Love

During her PDA, Professor Ryang will do research that may be used to help bring North Korea within the tenet of global understanding through the proposed project entitled "North Korea: In Search of Love." Building on her recent publication, *Reading North Korea: An Ethnological Inquiry*, Ryang will conduct a comprehensive survey of North Korean literature, print media, audio-visual materials, and performance arts, which are available in North America. With her specific focus of inquiry placed on the logic of love in North Korean society, Ryang's research is expected to fill the current gap in our knowledge of North Korea. Based on archival research, informed by her anthropological and ethnological training and experience, Ryang will publish her work as a book, a sequel volume to her earlier work. This work will also inform her teaching.

SCHLUTTER, MORTEN, ASSOCIATE PROFESSOR, RELIGIOUS STUDIES, 10 YEARS OF SERVICE, SPRING SEMESTER

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

Professor Schlütter will use his PDA to complete a book manuscript about the history and evolution of Chan Buddhism in Medieval China (8th to 13th centuries). Chan, better known under its Japanese name "Zen," is one of the dominant forms of Buddhism in East Asia today, and has also had a significant cultural impact in Europe and the Americas in recent times. Dr. Schlütter's book project will use little-known alternative versions of a central Chan-Buddhist text known as the Platform Sutra, that appeared over a period of six hundred years, to uncover important changes within Chan ideology over time. He will submit the completed manuscript at the end of the PDA to Hawai'i University Press, with which he has a contract. The book will be directed to a broad audience, including academics in other disciplines, members of the educated public, and college students with some background in Buddhism. The process of researching and writing the book will enhance his teaching of several UI courses, such as Zen Buddhism, Introduction to Buddhism, and Reading Buddhist Scripture.

SCHWALM, LESLIE A, PROFESSOR, HISTORY, 22 YEARS OF SERVICE, FALL SEMESTER

Title: Racial Knowledge and America's Civil War

For her PDA, Professor Schwalm will begin writing a book on how "race" became a medical and scientific "fact" during and after the Civil War. For the first time in American medical history, the war made the human body - healthy, wounded, diseased, and as fragmented remains - abundantly available for clinical consideration. Doctors, scientists, and civilian volunteers involved in wartime medical care brought to their encounters with African Americans an intense interest in black bodies--as valuable sources of study and as perceived risks to public health. As individual case studies and as quantifiable populations, African Americans in good and ill health, living and dead, were subjected to investigation, measurement, and speculation; and their severed limbs, tumors, bones, blood and tissue were photographed and taken as specimens. Out of this, physicians and scientists believed the physiological and moral peculiarities of an inferior race could be revealed. Schwalm will use this new information in her large Civil War history class; to direct graduate research; to lead Civil War scholarship in new directions; and to engage in public discussions about the history of American ideas about race.

TANG, QIHE, PROFESSOR, STATISTICS & ACTUARIAL SCIENCE, 7 YEARS OF SERVICE, FALL SEMESTER

Title: Modeling and Analyzing Extreme Risks in Insurance and Finance

The prevalence of rare events accompanied by disastrous economic and social consequences--the so-called Black-Swan events--makes today's world far different from just decades ago. This intensifies the need for undertaking efficient risk management in insurance and finance industries. Professor Tang proposes to use his PDA to model and analyze extreme risks in insurance and finance under the central hypotheses that the underlying insurance and financial risks follow heavy-tailed or extreme value distributions and that they are dependent on each other. The proposed research will produce tools to assist insurers and bankers to accurately measure and efficiently manage the global risk of their insurance and investment portfolios. It will develop innovative methodologies for conducting extreme value analysis. The proposed research will be integrated with education in several ways including offering advanced topics courses and training doctoral students. During the award period, Professor Tang will make presentations in conferences and universities and will pursue four publications in top-tier journals in the area.

THERRIEN, WILLIAM J, ASSOCIATE PROFESSOR, TEACHING AND LEARNING, 7 YEARS OF SERVICE, FALL SEMESTER

Title: Improving students' with learning disabilities reading achievement

Professor Therrien will utilize his PDA to co-author a book on effective reading strategies for students with learning disabilities (LD). Reading difficulties are a primary concern for students with LD. Two sub-components of reading, reading fluency (i.e., the ability to read texts quickly, accurately and with proper expression) and text comprehension strategies (i.e., employing higher order thinking skills to ensure a passage is understood) are often need areas for students with LD. Dr. Therrien has extensive experience implementing and validating strategies aimed at improving these skills. The goal of the book is to provide teachers with step by step instructions on how to implement effective strategies aimed at improving students' reading fluency and comprehension skills. Dr. Therrien also plans to infuse the instructional strategies developed and refined through this process in his teacher preparation classes. Ultimately he hopes that the publication of the book will result in improved reading achievement for students with LD in the state of Iowa and the nation at large.

UKSTINS PEATE, INGRID A, ASSOCIATE PROFESSOR, EARTH AND ENVIRONMENTAL SCIENCES, 6 YEARS OF SERVICE, SPRING SEMESTER

Title: Investigating volcanic eruptions and mass extinction events.

Associate Professor Ingrid Ukstins Peate researches the impact of large-volume explosive volcanic eruptions on global climate. She will spend her PDA at the Guangzhou Institute of Geochemistry, Chinese Academy of Science (Guangzhou, China) where she will collaborate with Chinese scientists studying large volcanic eruptions of the Tarim and Emeishan volcanic provinces – located in NW China – that have been linked to mass extinction events. She will strengthen research ties and develop new collaborative projects, collect preliminary data necessary to prepare a grant application to the National Science Foundation Earth Science program, and write research papers on these volcanic events for submission to international, peer-reviewed scientific journals. Research will be integrated into her courses, and undergraduates and graduate students will participate in research projects. This assignment will benefit society by investigating the causal links between volcanic eruptions and climate change, which may help us predict the effects of future volcanic eruptions.

VAN HORNE, AMANDA J O, ASSOCIATE PROFESSOR, COMMUNICATION SCIENCES & DISORDERS, 8 YEARS OF SERVICE, FALL SEMESTER

Title: The use of connectionist models in improving intervention techniques for children with language learning disorders.

Approximately 14,000 Iowa children under the age of 5 have a language learning disorder. More effective and efficient interventions would lead to better educational outcomes for these children and conserve scarce resources in our schools. Dr. Van Horne's current work, funded by the American Speech and Hearing Foundation, examines how the choice of treatment targets and training stimuli affect the effectiveness of language interventions. Dr. Van Horne will use her PDA to receive advanced training in neural networks and connectionist models. Connectionist models are uniquely suited to examine a wide variety of targets and input combinations rapidly. This technique has the potential to conserve resources by narrowing the choices of interventions to be attempted with children and to provide insights into why certain techniques are effective. Dr. Van Horne will combine this knowledge with her current research results to develop more efficient language interventions. Her findings will enhance the language development and graduate child language seminar courses in Communication Sciences & Disorders, helping the University of Iowa to train skilled and informed speech language pathologists.

VLASTOS, STEPHEN G, PROFESSOR, HISTORY, 37 YEARS OF SERVICE, FALL SEMESTER

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

Professor Vlastos is writing a book-length history of national identity formation in post-World War II Japan. The book traces the origins, ascendancy, and subsequent erosion of three foundational narratives of postwar state and society that emerged after WW II in the aftermath of total defeat in the Asia Pacific War (1937-45) and U.S. military occupation, 1945-52. Understanding Japan's recent history and its position today in the global society of the 21st century is important to Americans and Iowans. Last year the Pentagon officially "pivoted" U.S. strategic priorities from Europe/Middle East to Asia, where Japan is America's most important ally. Moreover, Japan is the world's third largest economy and Iowa's third largest export market. Vlastos will use the PDA to write two chapters of the book and develop a new course on post-WW II Japanese history to be taught in AY 2015-2016.

WATT, SHERRY K, ASSOCIATE PROFESSOR, EDUCATION POLICY & LEADERSHIP STUDIES, 13 YEARS OF SERVICE, FALL SEMESTER

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

Professor Watt will use her PDA to do 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 collecting data for a pilot study. 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. Watt will test 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. Testing the Watt PIE Model is an important next step in the research that informs how effective, transformative sociocultural learning occurs within the educational process in post-secondary institutions. This work will be integrated into her courses.

WEINER, JOSHUA, ASSOCIATE PROFESSOR, BIOLOGY, 9 YEARS OF SERVICE, SPRING SEMESTER

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

During this PDA, Prof. Weiner will conduct research in the laboratory of Dr. Britta Engelhardt, Director of the Theodor Kocher Institute (TKI) at the University of Bern, Switzerland. Dr. Weiner's lab recently discovered that a family of neuronal adhesion molecules ("sticky" proteins that bind cells together), the Protocadherins, is present at interfaces between the brain and the immune system, the blood-brain and blood-CSF barriers. Neuro-immune interactions governed by such molecules are relevant to infectious diseases of the brain and to auto-immune brain disorders like Multiple Sclerosis (MS). Lacking expertise in this area, Dr. Weiner sought out Dr. Engelhardt, whose TKI is focused exclusively on immunosurveillance. Together they received a pilot grant from the National MS Society (2012-2013) and began collaborating. During the PDA Dr. Weiner will learn new techniques, establish new mouse models of MS, and write papers and new joint grant applications to further this collaboration. Upon return, he will strengthen neuro-immune research at UI with these continuing projects, and consider designing or contributing to a course in neuroimmunology with other UI faculty.

WU, CHUN-FANG, PROFESSOR, BIOLOGY, 35 YEARS OF SERVICE, SPRING SEMESTER

Title: A unique opportunity of international networking and collaboration for Drosophila neurogenetics research, teaching, and publication

Recent advancements in genomic and neural recording techniques have helped elucidate the brain function and behavior in *Drosophila* (the fruit fly). During his PDA, Professor Wu will exploit his new findings and technical advancements in automated behavioral tracking, optical imaging, and physiological recording to reveal brain activity in behaving flies upon genetic manipulations. He will collaborate in this work with many *Drosophila* neurobiologists using new facilities at the Academia Sinica in Taiwan. This research will benefit his UI laboratory research, science teaching, and the Aging Mind and Brain Initiative at UI, promoting UI's visibility as a center for international collaboration and education in neurogenetics.

*****ZHANG, XIAOYI, ASSOCIATE PROFESSOR, MATHEMATICS, 4 YEARS OF SERVICE, FALL SEMESTER**

Title: Critical nonlinear Schrodinger equations on general manifolds

Professor Xiaoyi Zhang will use his PDA to study the global wellposedness, scattering, soliton formation and finite time blowup problems for the fundamental equation in quantum physics--nonlinear Schroödinger equations outside the non-trapping obstacle. Compared with the problems in the whole space case that have been extensively studied in the past 20 years, the obstacle problem has significant mathematical difficulties as it involves complicated geometry and equation changes in the non-linear problems. This project is expected to result in several journal articles, a grant from NSF, new material for Professor Xiaoyi Zhang's undergraduate and graduate courses, and new research topic for her current Ph.D. students.

ZHUPANSKA, OLESYA I, ASSOCIATE PROFESSOR, MECHANICAL AND INDUSTRIAL ENGINEERING, 6 YEARS OF SERVICE, SPRING SEMESTER

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

Composite materials play a pivotal role in various aspects of our lives, from national security to energy conservation and sustainability efforts. Advanced composite materials derive their properties from a complex material structure. The desired macroscopic properties of composites can be achieved by controlling microstructures at nano- and micro-meter scales. The goal of the proposed research is to lay out a new materials-by-design methodology enabling one to utilize complex material microstructures in the virtual design of multifunctional composite materials. The methodology will be based on multidisciplinary approaches integrating micromechanics, multiscale material modeling, nonlinear mathematical programming, and multi-criteria design optimization. The proposed PDA research will stimulate multidisciplinary collaborations and contribute to Iowa's competitiveness in the area of advanced materials. It will also contribute to the curriculum through development of a new module on micromechanical modeling and optimization of composites for Composite Materials class that Professor Zhupanska teaches. The project is expected to result in several journal articles and new grant submissions.

*** Will have met the 10 semester requirement prior to taking the assignment approved per SUI Policy.

IOWA STATE UNIVERSITY

ARORA, RAJEEV, PROFESSOR, HORTICULTURE, 12 YEARS OF SERVICE, SPRING SEMESTER

Professor Arora proposes an assignment to the Max Planck Institute of Molecular Plant Physiology in Germany, where he will work with colleagues to better understand how plants recover from freeze-thaw stress. Arora will identify genes important to the recovery process, which can be used in the future to improve freeze-thaw stress tolerance in crops of economic importance to Iowa. The work will revitalize low-temperature stress biology research at Iowa State, resulting in peer-reviewed publications, grant proposals, and projects for graduate students.

BADO, NIKKI, ASSOCIATE PROFESSOR, PHILOSOPHY AND RELIGIOUS STUDIES, 10 YEARS OF SERVICE, SPRING SEMESTER

Professor Bado will use her proposed PDA to complete a book and several articles that examine religions as they are lived, including rituals, festivals and material culture. Bado will also incorporate the knowledge gained from these projects to create new classroom materials that will enrich and enhance Iowa State students' awareness and understanding of culture and religions.

BLACKHURST, JENNIFER, ASSOCIATE PROFESSOR, SUPPLY CHAIN AND INFORMATION SYSTEMS, 8 YEARS OF SERVICE, FULL YEAR

Professor Blackhurst will use her proposed assignment to develop collaborative projects with management sciences researchers at the University of Iowa, using optimization models to study supply chain risk. Blackhurst's work will result in papers published in premiere journals, and the development of skills and methods that improve teaching of Iowa State Ph.D. and MBA students. These methods will also be used in projects with ISU College of Business industry partners.

BRONIKOWSKI, ANNE, ASSOCIATE PROFESSOR, ECOLOGY, EVOLUTION, AND ORGANISMAL BIOLOGY, 9 YEARS OF SERVICE, FULL YEAR

Professor Bronikowski proposes a PDA at the University of Edinburgh, UK, to learn new research skills and process data related to the integration of immune and stress functions that are part of the biology of aging. Bronikowski expects to write at least six scholarly papers as a result of her assignment, and improve Iowa State's research and teaching capabilities in demographic modeling, aging genetics, and evolutionary quantitative genetics.

CAMPBELL, CHRISTINA, ASSOCIATE PROFESSOR, FOOD SCIENCE AND HUMAN NUTRITION, 4.5 YEARS OF SERVICE, SPRING SEMESTER

Excessive gestational weight gain increases maternal and infant risk for chronic disease. Professor Campbell will use her proposed PDA to collaborate with prenatal exercise and diet experts, building on her successful "Blossom" project to promote optimal maternal and fetal health. Her work is expected to result in the submission of four manuscripts, the development of international collaborations, and further support Iowa's goal to become the healthiest state in the nation.

CHAN, CHIU-SHUI, PROFESSOR, ARCHITECTURE, 24 YEARS OF SERVICE, FALL SEMESTER

Professor Chan proposes an assignment to China, where he will develop a computer-aided modeling prototype that Iowa architects and architectural students can use to more quickly generate designs and forms. The new tool will help students visualize architectural changes in real time, improve the efficiency and speed of the design process, and help researchers explore factors influencing style. Knowledge gained during the assignment will also be incorporated into Chan's graduate courses.

CLOUGH, MICHAEL PAUL, ASSOCIATE PROFESSOR, SCHOOL OF EDUCATION, 14 YEARS OF SERVICE, FALL SEMESTER

Students, teachers, policymakers, and the general public often have misconceptions regarding the nature of science, which can result in poor policy decisions and teaching practices, and deter talented individuals from pursuing science careers. Professor Clough proposes an assignment to improve science teaching and learning through the history and nature of science, including writing a book on the subject, completing several research studies, and making improvements to his science education course.

DILLA, WILLIAM, ASSOCIATE PROFESSOR, ACCOUNTING, 15 YEARS OF SERVICE, SPRING SEMESTER

Professor Dilla's proposed assignment includes collaborative experiments to evaluate interactive data visualization tools at the University of Gothenburg (Sweden) Centre for Business Solutions. Outcomes of Dilla's research will include writing scholarly papers, improving data visualization training at Iowa State, expanding the university's capabilities in Big Data, and informing business managers across the state about the latest technologies for analyzing large data sets.

ELIA, NICOLA, ASSOCIATE PROFESSOR, ELECTRICAL AND COMPUTER ENGINEERING, 14 YEARS OF SERVICE, SPRING SEMESTER

Professor Elia will spend his PDA at MIT, and universities in Germany, Italy, and Sweden, writing a textbook, as well as building upon his research in network control systems. These systems have many applications important to Iowans, including the distributed control and optimization of wind energy farms; establishing additional expertise in this area will result in competitive grant applications, publications, and industry partnerships.

HADDAD, MONICA, ASSOCIATE PROFESSOR, COMMUNITY AND REGIONAL PLANNING, 10 YEARS OF SERVICE, SPRING SEMESTER

Professor Haddad's scholarly work has focused on applying geographic information systems (GIS) to urban and regional planning challenges, as well as social development in Brazil. Haddad's proposed PDA will include travel to Brazil, where she will develop a spatial methodology that considers environmental impacts of urbanization, as part of an overall effort to improve the planning process of Brazilian cities. Her work will result in articles and presentations, and expand teaching topics for Iowa State students.

HOGBEN, LESLIE, PROFESSOR, MATHEMATICS, 35 YEARS OF SERVICE, FULL YEAR

Professor Hogben, a leading researcher in linear algebra, proposes a PDA to expand her research in combinatronics, graph theory, and their applications, as a member of the Institute for Mathematics and its Applications *Thematic Year on Discrete Structure: Analysis and Applications*. Hogben's work will result in increased visibility for Iowa State in combinatronics and graph theory, research publications and conference presentations, and develop the background necessary to teach graduate courses and supervise doctoral students in these areas.

HOLMGREN, MARGARET, ASSOCIATE PROFESSOR, PHILOSOPHY AND RELIGIOUS STUDIES, 30 YEARS OF SERVICE, SPRING SEMESTER

Professor Holmgren proposes to develop a virtue ethical theory during her assignment. This new theory, based on Holmgren's earlier work, is based on the idea that the most fundamental task in ethics is to cultivate morally appropriate attitudes. She will use the PDA to develop a book-length manuscript on the subject, and also use that knowledge to enrich her courses on environmental ethics, the philosophy of law, moral theory and practice, a new course on poverty.

IVERSON, NEAL, PROFESSOR, GEOLOGY AND ATMOSPHERIC SCIENCES, 16 YEARS OF SERVICE, FULL YEAR

Processes that occur at the beds of glaciers where ice slides over rock and sediment help control rates of sea-level rise and thereby affects hundreds of millions of people who live in low-lying coastal areas. Professor Iverson's proposed PDA in Denmark and Norway will focus on improving a numerical model of mountain range erosion by glaciers, and completing an NSF-supported study of glacial hills. The work will result in new pathways to external grant funding, support for post doctoral researchers and graduate students, and provide research experiences for Iowa State undergraduate students.

JANZEN, FREDRIC JAY, PROFESSOR, ECOLOGY, EVOLUTION, AND ORGANISMAL BIOLOGY, 19 YEARS OF SERVICE, FALL SEMESTER

Professor Janzen proposes to work with colleagues at four universities in Australia during his PDA, focused on sex determination, microevolution, and reptile biology. Building on his research of turtles, and other reptiles along the Mississippi River, Janzen expects to submit at least six scholarly papers and two grant proposals, and improve Iowa State's capabilities in microclimate modeling, developmental genetics, and international field biology. He also plans to offer a new international experience for Iowa State students in Australia.

JEFFRIES-EL, MALIKA, ASSOCIATE PROFESSOR, CHEMISTRY, 8 YEARS OF SERVICE, SPRING SEMESTER

Professor Jeffries-EL proposes an assignment to the Massachusetts Institute of Technology, to gain increased knowledge in materials science and physics, which will benefit her current research focus on organic semiconductors. This work has potential impact in a variety of areas important to the state, including energy (solar cells) and electronics. Knowledge gained through the PDA will also allow her to develop a new interdisciplinary course in this field.

JIANG, ZHENGRUI, ASSOCIATE PROFESSOR, SUPPLY CHAIN AND INFORMATION SYSTEMS, 5 YEARS OF SERVICE, FULL YEAR

Professor Jiang's proposed PDA focuses on application-driven data and knowledge management, which seeks to glean useful information from increasingly voluminous and complex data; and critical marketing decisions for successive generations of technological innovations, such as simple and smart phones. Jiang's work, to be completed at institutions in Washington, Singapore, New Zealand and France, and funded in part by INISEAD, will result in research publications, and be transferred to students in classrooms.

KRIZAN, ZLATAN, ASSOCIATE PROFESSOR, PSYCHOLOGY, 6 YEARS OF SERVICE, SPRING SEMESTER

Professor Krizan proposes an assignment to Cornell University, and the University of California – Riverside, to explore voter psychology in elections. The research will provide a key extension of Krizan's scholarship, offering new insights on voter behavior, engaging students working in his laboratory, generating peer-reviewed publications, and strengthening political research at Iowa State. Krizan also plans to submit a grant proposal to the NSF to examine voter behavior in the 2016 U.S. presidential election.

LAJOIE, JOHN, PROFESSOR, PHYSICS AND ASTRONOMY, 16 YEARS OF SERVICE, FALL SEMESTER

Professor Lajoie has been working for several years on a novel new particle physics detector at the Relativistic Heavy Ion Collider at Brookhaven National Laboratory in New York. This device will make new measurements to help explain the structure of nuclear matter; it has been approved by the U.S. Department of Energy, and is currently under construction. Lajoie, who serves as spokesperson for this highly visible project, proposes an assignment to oversee construction of the collider, and to further his research in quantum chromodynamics.

LEE, SUMAN, ASSOCIATE PROFESSOR, GREENLEE SCHOOL OF JOURNALISM AND COMMUNICATION, 9 YEARS OF SERVICE, SPRING SEMESTER

Professor Lee proposes an assignment to investigate Chinese and Korean consumers' view of Iowa and its agricultural products, and to analyze media coverage of these topics. The project will help students learn global perspectives on communicating with foreign consumers, and assist the state in promoting and managing Iowa's image in key trading markets. Results will be shared through scholarly papers and conference presentations, and will be incorporated into Iowa State's curriculum.

LESAR, RICHARD, PROFESSOR, MATERIALS SCIENCE AND ENGINEERING, 7 YEARS OF SERVICE, FALL SEMESTER

Professor LeSar will spend parts of his PDA at Universitat Karlsruhe in Germany, and the University of California, Santa Barbara, developing computer simulations used to study the deformation of materials. This research into how metallic materials become fatigued has broad impacts for science and industry; results will be shared with the engineering community, and incorporated into an online course under development.

LEVIS, JOHN, ASSOCIATE PROFESSOR, ENGLISH, 13 YEARS OF SERVICE, FALL SEMESTER

Professor Levis proposes an assignment to California, England, and the Czech Republic, where he will explore the critical role of pronunciation in intelligible speech. The results of his work will be compiled in a single-authored scholarly book, which is expected to impact English as a Second Language (ESL) teaching at many levels. Levis' research will also benefit faculty and teaching assistants at Iowa State and other universities, as well as instructors in ESL adult education programs.

LEVITAS, VALERY, PROFESSOR, AEROSPACE ENGINEERING AND MECHANICAL ENGINEERING, 5 YEARS OF SERVICE, FALL SEMESTER

Professor Levitas will work with colleagues at Ruhr-University of Bochum in Germany, building on his research into phase field approaches for simulating nanostructure evolution. Levitas will use the PDA to develop new research directions and funding opportunities related to nanotechnology, develop a pipeline to attract new graduate students and post doctoral students from Germany, and expand the audience for online courses.

LIU, HAILIANG, PROFESSOR, MATHEMATICS, 11 YEARS OF SERVICE, FALL SEMESTER

Professor Liu proposes a PDA to develop mathematical tools and numerical algorithms to recover high-frequency wave fields in applications such as solar energy and medical imaging. The project, to be completed in Ames, China, and Germany, is expected to have significant impact in the areas of applied and computational mathematics, as well as other fields dealing with high-frequency wave propagation. Liu's work will also be communicated through research publications, and in his graduate courses.

MARGRETT, JENNIFER, ASSOCIATE PROFESSOR, HUMAN DEVELOPMENT AND FAMILY STUDIES, 7 YEARS OF SERVICE, SPRING SEMESTER

The primary focus on Professor Margrett's PDA will be to conduct research and develop a large longitudinal grant application (R01) to the National Institutes of Health, to identify characteristics of the home environment that affect cognitive ability in middle and late life. Margrett will work with colleagues at Oklahoma State University, and NIH program officers, to prepare her proposal. The work will also benefit undergraduate and graduate students in courses addressing family health, gerontology, and cognitive health.

MCCORMICK, JAMES, PROFESSOR, POLITICAL SCIENCE, 38 YEARS OF SERVICE, SPRING SEMESTER

Professor McCormick proposes a PDA to visit various cities in Australia, where he will conduct research to gain a greater understanding of how American foreign policy – in particular, America's strategic rebalancing toward Asia – impacts Australian foreign policy. The results of McCormick's analysis will be submitted to journals, presented at international conferences, and be used to develop a mini course on the subject at Iowa State.

MOLONEY, KIRK, PROFESSOR, ECOLOGY, EVOLUTION AND ORGANISMAL BIOLOGY, 21 YEARS OF SERVICE, FULL YEAR

Professor Moloney proposes an assignment to New Zealand, where he will work with colleagues at the University of Auckland to develop a general theory of fire risk under climate change, focusing on semi-arid shrubland ecosystems. The goal of Moloney's project is to better understand risk in sensitive ecological systems, an issue of increasing importance, and with severe economic implications. The results will lead to a series of scholarly papers, and be incorporated into his teaching.

OLSON, JOANNE, ASSOCIATE PROFESSOR, SCHOOL OF EDUCATION, 14 YEARS OF SERVICE, SPRING SEMESTER

Professor Olson will research teachers' decision-making during her PDA, which will be spent at Calvin College in Michigan, and in Ames. Her research will help teachers prepare to make research-based decisions in dynamic and complex classroom environments. Olson will use the PDA to prepare and submit several research manuscripts, and submit a large-scale grant proposal on the subject, as well as pilot test teacher noticing patterns using eye-tracking technology. The results will have a positive impact on Iowa teachers and children.

PROZOROV, RUSLAN, PROFESSOR, PHYSICS AND ASTRONOMY, 8 YEARS OF SERVICE, FALL SEMESTER

Professor Prozorov will use his proposed PDA to work with colleagues at the University of Illinois using optical and superconducting magnetometry techniques. These techniques will form the basis for a new nanoscale imaging facility Prozorov will lead for the U.S. Department of Energy's Ames Laboratory, and be published through journals and research conferences. The project also includes two Iowa State graduate students who will learn the techniques as part of their Ph.D. program, and a post-doctoral student.

RAICH, JAMES, PROFESSOR, ECOLOGY, EVOLUTION, AND ORGANISMAL BIOLOGY, 21 YEARS OF SERVICE, SPRING SEMESTER

Professor Raich proposes an assignment to study how climate change affects vegetation and soils, and in ways that in turn modify climate. Raich plans to visit the interdisciplinary global change program at the University of Michigan, where he will work with colleagues on terrestrial carbon cycling processes, write manuscripts, and prepare grant proposals to support research and student education. The PDA will also strengthen and reinvigorate his teaching and research activities at Iowa State.

RAMAMOORTHY, ADITYA, ASSOCIATE PROFESSOR, ELECTRICAL AND COMPUTER ENGINEERING, 7 YEARS OF SERVICE, SPRING SEMESTER

Over the past five years, Professor Ramamoorthy has written 10 scholarly articles and given 20 research presentations in the area of network coding – an approach where nodes in computer networks process incoming data. Ramamoorthy proposes a PDA with colleagues at the California Institute of Technology to conduct research that will be the basis for collaborative large grant proposals, be published in journals and conferences, and enhance his work with graduate students.

RICHARDS, CHUCK, ASSOCIATE PROFESSOR, INTEGRATED STUDIO ARTS, 15 YEARS OF SERVICE, SPRING SEMESTER

Professor Richards proposes a PDA to complete the final artwork for *Escher's Cat*, a children's book to be published by Walker and Company/Bloomsbury Publishing, as well as develop his skills as a writer. The experience will benefit Iowa State students taking Richards' drawing lectures, which are attended by more than 650 first-year design majors each year, and contribute to the development of an advanced drawing course in sequential narrative illustration.

STEWART, SUSAN, ASSOCIATE PROFESSOR, SOCIOLOGY, 10 YEARS OF SERVICE, FALL SEMESTER

Professor Stewart proposes an assignment to research the controversial and increasing practice of parents and children sleeping together at night. This work will build on an earlier grant to interview mothers and fathers who "co-sleep" with their children. Stewart will use the PDA to conduct data analysis, write three journal articles, deliver four conference presentations and seminars, and create the outline for a book on the subject.

VASWANI, NAMRATA, ASSOCIATE PROFESSOR, ELECTRICAL AND COMPUTER ENGINEERING, 8 YEARS OF SERVICE, SPRING SEMESTER

Professor Vaswani's research interest lies in dynamic sparse phase retrieval, specifically, the process by which applications such as magnetic resonance imaging use data to reconstruct images. Vaswani will work with colleagues at the California Institute of Technology and Johns Hopkins University to improve optical and astronomical imaging technologies, which is expected to result in 3-5 journal publications, 3 successful large grant proposals, and be incorporated into his undergraduate and graduate courses.

WADE, NATHANIEL, ASSOCIATE PROFESSOR, PSYCHOLOGY, 10 YEARS OF SERVICE, SPRING SEMESTER

Professor Wade studies the stigma often associated with seeking psychological help. Wade's proposed PDA will allow him to study this phenomenon in Germany, where he has been invited by two universities to help develop interventions to reduce the stigma. This work, expected to result in numerous manuscripts, conference presentations and grant proposals, will provide additional insight for Wade's work in Iowa and the U.S., benefit his students, and enhance Iowa State's international reputation.

WEI, MEIFEN, PROFESSOR, PSYCHOLOGY, 11 YEARS OF SERVICE, SPRING SEMESTER

Professor Wei proposes a PDA to expand her research program on coping with minority related stress. Wei will travel to Taiwan to collect data related to the intersection of culture and gender on anger suppression. The results of her work will include three articles for publication; a culturally relevant emotion-focused therapy intervention for Asians and Asian Americans; and benefit her Counseling Practicum and Multicultural Counseling courses at Iowa State.

WU, ZHIJUN, PROFESSOR, MATHEMATICS, 13 YEARS OF SERVICE, FULL YEAR

Professor Wu will investigate mathematical theories in ecological and evolutionary modeling at Iowa State, and The Ohio State University, during his proposed assignment. Wu's research on evolutionary game theory will lead to the development of new algorithms and software that can be applied to a range of biological and medical concerns, including virus replication, animal breeding, genetic disorders, or infectious diseases in the human population. The PDA is expected to lead to the development of one software package, eight papers, grant proposals, and a new graduate course for Iowa State students.

ZHAO, YAN, PROFESSOR, CHEMISTRY, 11 YEARS OF SERVICE, SPRING SEMESTER

Professor Zhao proposes a PDA to visit the State Key Laboratory of Applied Organic Chemistry at Lanzhou University in China, where he will establish a satellite research group to complement Iowa State organic chemistry research in the areas of molecular recognition of lipid membranes and pore-forming compounds. Establishing the group will allow Zhao to access research funding from the Chinese government, expand his research productivity, and recruit graduate and post doctoral students to Iowa State.

UNIVERSITY OF NORTHERN IOWA

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

Dolly Parton: Image, Music, Text

Professor Boyd's PDA project is to write a book that will make a substantive advancement within current musicological research on women as creators (rather than re-creators or performers) of country music. Her book will examine the original songs of Dolly Parton (b. 1946) and the interrelationship between lyrics, music, and her image. Professor Boyd's analysis will contribute significant insights into our understanding of Parton's music and her role as an American icon. This work will benefit the citizens of the state of Iowa and contribute to the improvement of the University. WHO Radio in Des Moines once played a crucial role in the formative years of commercial country music. Through Professor Boyd's project and continuing public lectures, citizens of Iowa will be able to learn more about their own participation in this development, and how country music in general has become an essential part of the cultural identity of the American Midwest. UNI students benefit from her research as she continues to integrate her expanded knowledge and findings into the classroom.

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

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

Research suggests that individuals with substance use disorders hold negative attitudes towards themselves (self-stigma) and this may have unfortunate consequences—for instance, not seeking out substance use treatment. The focus of Professor Brown's project will be to thoroughly examine the phenomena of self-stigma among active/recent substance users. This project will constitute one of the most thorough examinations of this topic and include multiple facets in understanding self-stigma among substance users which could be instrumental in formulating prevention and intervention strategies. During the PDA period, Professor Brown will complete two manuscripts for journal articles, based on data collected prior to the PDA. The results from these data will inform a second round of data collection during the PDA period. The research stemming from this project will help establish UNI as a national leader on this topic, provide unique research and clinical opportunities for UNI undergraduate and graduate students, and facilitate grant funding. Those struggling with substance use (both in and outside Iowa) will benefit from this research, perhaps through interventions developed later to address self-stigma.

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

Synthesis of a Diruthenium Alkane Complex

Alkanes, or saturated hydrocarbons, are underutilized in chemicals manufacturing due to the difficulty of selectively cleaving a carbon-hydrogen (C-H) bond in an alkane. Transition metal catalysts have the potential to transform alkanes into higher value products, but the cleavage of the C-H bond is still not well understood at a fundamental level, partly because of the unstable nature of transition metal alkane complexes that precede the C-H bond cleavage step. Because of their unstable nature, these short lived intermediate complexes are very difficult to fully characterize. During the PDA, Professor Chin will determine if a stable alkane complex can be made by sandwiching a single alkane molecule between two metal centers. The resulting stable alkane complex will be fully characterized and the knowledge gained in this work will help further the field of catalytic C-H bond activation and functionalization. Advancements in this field will help us better manage our hydrocarbon resources. The longer term benefits of this

work could be conversion of methane from biogas digesters into products of higher value. The immediate benefits of Professor Chin's work is his work on this research with undergraduates, who will have hands on experience with a variety of instrumentation and will have a competitive advantage upon graduation.

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

Perhaps the most sweeping biological consequence of global climate change is the resulting changes in how species are distributed across geography. While some species face extinction, others are able to shift their geographic ranges. However, even those species that are able to colonize new areas face changes in population size that are likely to reduce their genetic diversity, leaving populations more vulnerable to extinction caused by exposure to new diseases or parasites. For over 20 years, Professor Demastes has been studying a species of lice (on pocket gophers) that is experiencing an ongoing shift in its geographic distribution. This PDA will allow him to expand this long-term study of range shifts to the genetic level. He will collect current DNA samples, and process those samples in the laboratory and compare these to DNA samples from the same site taken over the course of 22 years that are in cold storage at UNI (nearly 250 generations for the lice), allowing him to test hypotheses related to how well populations recover from the genetic consequences of range shifts. In addition to the intrinsic scientific value of the genetic study, UNI students will be part of this research, and the results will fuel future student projects as well. Professor Demastes will also use the results of the PDA to improve a grant proposal for resubmission to the National Science Foundation.

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

Volunteering for Change

Volunteering is a common and important experience in the US. In 2011, volunteers worked in a formal organization for an estimated 7.9 billion hours, resulting in a value of \$171 billion (Corporation for National and Community Service 2012). Social service agencies rely on volunteers to carry out their missions of helping the most vulnerable among us. Because volunteering is freely chosen and can end at any moment at the volunteer's discretion, it is important to understand how volunteers experience their work, what obliges them to continue their commitments, and what compels them to end them. Her work is important to Iowa because of the reliance on volunteering in Iowa: 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). The goal of Professor Froyum's work is to better understand what sustains and disrupts volunteerism so that social service agencies in Iowa can better facilitate meaningful volunteer experiences and sustain the commitment of volunteers. Professor Froyum has already collected qualitative research data in the form of in-depth interviews with volunteers and she began data analysis in Summer 2013. During the PDA period she will continue data collection and analysis and write several manuscripts for submission to peer-reviewed journals, as well as giving presentations at conferences.

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

Professor Goatley's PDA will be devoted to the writing of a libretto for an original one-act opera about explorer Isabella Bird. Isabella Lucy Bird Bishop (1831-1904) was born six years before Victoria became Queen of England. She suffered health problems, leading her family to send her abroad to America in 1854 when she was twenty-three. As Bird traveled in America, she

wrote letters to her sister Henrietta back in England that were compiled into books. After traveling on to Australia and Hawaii, the Rocky Mountains pulled her back to America in 1873. She explored them, climbed them, traveled them, and wrote about them in her book, *A Lady's Life in the Rocky Mountains* (1879), again composed of letters to her sister Henrietta. Bird circled the globe three times in her life and became the first woman to become a fellow of the Royal Geographical Society. This will be the first operatic work solely devoted to Isabella Bird and will expand Professor Goatley's playwriting craft, which she teaches at UNI. The opera will also provide production opportunities for UNI students.

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

Born from Bamboo: Poems from Philippine Myths

Professor Gotera's PDA project will have a twofold aim: to research Philippine mythology and legend as bases for writing poetry, and then compose 40+ poems that relate, reinvent, and reinvigorate for today's audience traditional Philippine folktales and epics. The project will engage current issues and concerns of scholarly and street-wise poetics, so that this will not be merely retelling of folkloric narratives, but will through a variety of forms and styles appeal to diverse and wide-ranging interests. This topic will be of interest to the growing Asian American population and to anyone interested in multicultural topics, as well as to those who have a historical interest in a former U.S. territory. Professor Gotera's teaching of and expertise in poetry will be enhanced by this project, benefitting students in his classes.

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

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

Professor Grant's PDA project seeks to connect rhetorical theory with multimodal instructional practices for teachers of first-year college students, especially in the two areas already explicitly concerned with rhetoric: oral communication and written composition. Speech and writing instruction in the first year of college often look very different in practice. Professor Grant will analyze instructional methods used in both composition and speech courses in order to guide instructors of speech and composition in delivering blended instruction in rhetoric across different modes, chiefly written, oral, and visual. This will be useful for already established programs, as well as for programs newly integrating speech and written communication, such as UNI. The end result of this project will be a book-length manuscript for instructors to use as an instructional guide. UNI benefits from this project because of its 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

Framed within the concept of self-efficacy, Professor Kowalski's PDA study will qualitatively investigate factors that influence youth workers' efficacy levels. Youth work efficacy is the belief a staff member has in his or her ability to perform the tasks associated with the role of a youth development professional. Using a semi-structured format, participants will be interviewed regarding the theoretical knowledge, practical techniques, and professional values of youth work, as well as their occupational valence (the perceived attractiveness of the job to one's personal goals) and perceived organizational support associated with their current position. Students from a variety of disciplines can learn an essential step in staff development through classes, student associations (such as the Nonprofit Leadership Alliance), as well as graduate research. This study could lead to funding opportunities for continued work on an integral

component of youth development. The study will benefit the citizens of Iowa as Professor Kowalski uses the results to assist in effectively designing staff development opportunities for Iowa-based youth development organizations that directly serve their communities.

LOCKHART, AMY, INSTRUCTOR, TEACHING, 13 YEARS OF SERVICE, FALL SEMESTER

Terminal Degree Completion

Professor Lockhart will use the PDA period to write the dissertation, titled *Clinical Field Experiences: Elementary Classroom Teachers' Attitudes and Perceptions of Mentoring Pre-Service Teachers* in pursuit of the Doctor of Education degree at UNI. Specifically, her study will answer the following questions:

- What are the benefits and barriers of mentoring a pre-service teacher in regards to student learning?
- What are the benefits and barriers of mentoring a pre-service teacher in regards to the elementary teachers' own professional development?

Prior to the PDA period, Professor Lockhart will collect data from elementary teachers and do a preliminary analysis. Additional data collection or analysis, if needed, will occur at the beginning of the PDA period, and the majority of the dissertation writing will occur during the PDA period. The results of this study will provide the UNI Field Experience Coordinators and teacher education faculty with important data on how UNI students are impacting student learning in classrooms. Furthermore, the classroom teachers' perceptions of their own impact on pre-service teachers can only enhance our work here at UNI in how we prepare future teachers. Many of the teachers who are educated here at UNI will teach here in Iowa, and the more effectively we educate teachers, the better off the students in the state of Iowa will be.

NIELSEN, LYNN, PROFESSOR, CURRICULUM & INSTRUCTION, 33 YEARS OF SERVICE, FALL SEMESTER

The History of Malcolm Price Laboratory School

During the PDA period, Professor Nielsen will write a history of Malcolm Price Laboratory School from 1883 through the demolition of the building in 2013. The project will rely on the resources of the UNI Archives (Record Group 25), three previous written history of UNI (Wright, Hart and Lang), the photograph collections in the UNI Archives and personal interviews of those who remember the school. The unique aspect of Professor Nielsen's project will be the linking, online, of the history of MPLS with the stories of MPLS, as part of the larger MPLS History Website Project currently being developed. This project will benefit UNI and the state of Iowa. The Laboratory School holds a central place in the story of teacher education at UNI as the University evolved from the Normal School of the 1870s to a comprehensive university in the 21st Century. Teacher education with the embedded clinical field experiences continues to be an important facet of the University's mission. Teachers throughout the state of Iowa and the nation benefit from the Laboratory School's contributions in the areas of teacher education, clinical field experience, research, curriculum development and professional service, and Professor Nielsen's history will highlight those contributions.

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 PDA project is to complete a book proposal and have five chapters ready to submit for editorial review. She has been researching the visual depictions related to woman suffrage advocacy (circa 1900-1919) for a decade and has published numerous essays on the topic. Building on the results of a previous PDA, in the past three years, Professor Palczewski has focused her research on the depictions of violence and of women's vulnerability to political abuse that occurred from 1913-1917. The actions to which the depictions respond

will be the subject of the book. Based on primary source material from a week's research in the Library of Congress and at the Sewall-Belmont House archives of the National Woman's Party (over 1,500 documents), Professor Palczewski's book project will preserve and circulate the information for others. The critical rhetorical approach she employs will enable readers to render meaning of the collection in a way they may not be able to do when looking at individual pieces. The book will benefit UNI and the citizens of Iowa in several ways. Professor Palczewski is often asked to lecture on the topic as a keynoter and as a seminar leader at national developmental conferences. Her work on visual arguments in general, and on woman suffrage advocacy in particular, enhances the classes she teaches in Visual Rhetoric, Women's and Gender Studies, Gender Issues in Communication, and Rhetorical Criticism. Professor Palczewski's work also contributes to understandings of citizenship, engagement, and civic obligation.

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

Optimization Methods for Sustainable Manufacturing Using Biodegradable Metal Working Fluids
Since manufacturing is a very resource-consuming activity, it is important to consider sustainability at all levels of the life cycle of manufactured products. Optimization techniques are essential to save resources, to reduce waste and to improve productivity. Current mathematical models for manufacturing rarely include the environmental impact. Professor Rao's project is to develop a comprehensive mathematical model for metal cutting operations using cutting fluids, taking into account all the conventional aspects of the model and also the environmental impact. Based on the improved mathematical model, optimization procedures will be developed to identify the optimum cutting process parameters, such as cutting speed, feed rate and depth of cut, for a given operation. Professor Rao's work will help the manufacturing industries in Iowa to be able to justify the use of sustainable manufacturing practices such as the use of soy-based cutting fluids more effectively.

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

Analysis of Data in Routes to Reason: Proportion

Proportional reasoning (for example, how long will a 100 mile trip take if you drive 50 mph?) is one of the most used mathematical skills on a daily basis. *Routes to Reason: Proportion* is a multi-year study into the development of proportional reasoning by middle school students. The data collection phase of the study (student work on 26 problems) has been completed. During the PDA period, Professor Riehl will analyze the data. Beginning from the premise that the method a student uses to solve a problem depends on his/her conceptual understanding of the proportional situation, Professor Riehl will study the problem-solving strategies on problems of varying complexity to infer the developmental stage a student has reached. The overarching goal of the study is to determine if there is evidence of a learning trajectory—a predictable pattern of development in students' understanding of proportion. Project findings will contribute to the scholarly literature, and the practical findings will be extremely useful for teachers, since better recognition of factors which influence student thinking will inform their planning and assessment.

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

A Learning Lab is defined as a center that engages students in "mentor-led, interest-based, youth-centered, collaborative learning using digital and traditional media." Professor Schaffer's PDA project begins with an analysis of the technology needs of a learning lab environment, specifically one engaging in computer programming education. He will then identify the specific

hardware and software needed to meet these requirements and bring together existing packages with newly created software modules to create a prototype platform. This platform could be used for the deployment of a web-based tutorial system designed to help mentors in learning lab environments teach computer programming through self-paced modules. The platform produced during Professor Schafer's PDA is an essential part of the "prior work" section of a large-scale grant application for the development of a learning lab curriculum for computer science education. This larger curriculum project will allow for the implementation of "after school" learning lab programs run in libraries, boys and girls clubs, and in other student enhancement programs. These learning lab programs could provide beginning computer programming instruction to a wide variety of students both in Iowa and around the country.

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

During a previous PDA Professor Siddens wrote an original one-act play based on a re-imagining of the ancient English morality play *The Summoning of Everyman*, re-contextualizing the original script within a contemporary context, focusing on tensions between humanity and technology. The play was produced in Fall 2010 in the UNI Interpreters Theatre to full houses and positive reviews. Professor Siddens proposes to create the second of a trilogy of such re-imagined plays focused on current topics and themes. During the PDA period, he will create a contemporary play based on Dante's *Inferno* to reflect contemporary redefinitions of the seven deadly sins. He plans to produce the play in the Interpreter's Theatre, perhaps in Fall 2015, and also to market the play through dramatic play services and to professional theatres. Professor Siddens's project will benefit UNI student actors and technicians as the play is produced, and will enhance the reputation of UNI in the marketing of the play to outside theatres.

STANCLIFFE, TOM, PROFESSOR, ART, 25 YEARS OF SERVICE, SPRING SEMESTER

Public Art Project: Portico

The majority of Professor Stancliffe's creative activities spanning the past 20 years have been focused on creating monumental outdoor sculptures for public collections nationally. For the past two years he has also been developing an entirely new body of wall-based works that push the development of new techniques to create images directly on metal surfaces, as well as to integrate these images with three-dimensional form. Professor Stancliffe will be creating *Portico*, a major public art commission for the new West Campus Residence Hall at the University of Iowa. It will be his first commission that utilizes this new approach on a very large scale. The actual work will be created and installed between August 2014 and May 2015. Professor Stancliffe's PDA will support the most intensive period of its production. As with past projects, he will also hire students (current and recent graduates) to work with him directly as assistants. This valuable real-world work experience in the field of public art has proven in the past to be a substantial career boost for students. *Portico* will be permanent art work included in an internationally recognized art collection, enhancing the reputations of both UNI and the University of Iowa. It also benefits the citizens of Iowa through the enhancement of the educational environment of a Regent university.

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

During the 2011-2012 school year, three high-profile hazing cases occurred on high school wrestling teams in the state of Iowa. Alleged behaviors in the three hazing cases ranged from disgusting to dangerous and criminally abusive. The press, across the state of Iowa, reported many stories about these cases, and individuals were actively responding to the stories in social media sites. Sources such as newspapers and social media actively shape our interpretation and construction of hazing and thus have implications for athletics, hazing, and hazing prevention. Professor Waldron's PDA project will critically examine how the hazing and athlete discourse and language from the three wrestling cases were constructed in the print news media and social media sites, in order to identify taken-for-granted assumptions and established meanings about hazing and athletics. This has implications for everyday practices within sport. This work will contribute to the improvement of the University of Northern Iowa as Professor Waldron continues to develop knowledge, expertise, and evidence-based practice within the area of hazing in sport, which she has requests from academic disciplines, the community, and the media to share. Results from this project will assist us in further understanding hazing cases that have happened in Iowa, with the goal of preventing hazing, making our schools and extracurricular programs safer.

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

Bridge Theory and Industrial Project Application Through the Six Sigma Approach: Development of a Low-Cost Microcontroller-based Leakage Detection System

Leakages in hydraulic systems on machine equipment will cause the system to lose pressure, resulting in insufficient power to do intended work. It is preferable to detect leakage issues as early as possible so that further assembly of components with leakage faults can be avoided, for safety and environmental considerations. The objective of Professor Zhang's PDA project is to develop a low-cost hydraulic leakage testing prototype utilizing low pressure air and real time sensing technology, using the Six Sigma approach, e.g., the goal that undesirable events are improbable at the level of six standard deviations from the mean of all events. Through experimental study, a prototype system will be built using a USB-based microcontroller to capture pressure decay of a hydraulic system in real time. The research result will be submitted to a peer-reviewed journal in the manufacturing field for publication. Professor Zhang will also work for a short period in a local manufacturing industry on real Six Sigma projects, aiding her in pursuing the Six Sigma Certification administered by the American Society for Quality, so that she can teach UNI students the Six Sigma approach that is now the industry standard for manufacturing quality.