

Contact: Rachel Boon

**PROFESSIONAL DEVELOPMENT ASSIGNMENT REQUESTS FOR FY 2019**

**Action Requested:** Consider approval of the requests by the Regent universities for professional development assignments for FY 2019.

**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 §2.1-4R. For FY 2019, the universities request approval of 111 faculty professional development assignments; 11 fewer than FY2018. The FY 2019 request represents 2.2% of all faculty at the Regent universities. A brief description of the work planned for each proposed assignment is available in Attachments A-C. This report addresses the Board of Regents Strategic Plan priorities for “promoting and supporting innovation in teaching, research, and economic development and promoting effective use of resources to meet institutional missions.” The Board office recommends approval of the professional development assignment requests for FY2019.

**NUMBER OF PDA RECIPIENTS AND PERCENT OF TOTAL FACULTY  
FY 2015 – FY 2019**

	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
SUI	68 (3.0%)	56 (2.4%)	53 (2.3%)	65 (2.8%)	56 (2.4%)
ISU	37 (2.0%)	37 (2.0%)	31 (1.6%)	42 (2.1%)	43 (2.2%)
UNI	19 (2.4%)	17 (2.1%)	16 (2.0%)	15 (1.9%)	12 (1.7%)
<b>REGENT TOTAL</b>	124 (2.5%)	110 (2.2%)	100 (2.0%)	122 (2.4%)	111 (2.2%)

**Background:**

Institutional policies. Each university has academic policies that describe the process and requirements for professional development assignments (PDA) and which guide the selection of faculty proposed for PDA.

- **University of Iowa.** Full-time faculty members (i.e., tenure or clinical-track) with nine-month appointments who have completed a minimum of 10 semesters of full-time academic service are eligible for an initial one-semester PDA. Twelve-month faculty members are eligible for their first PDA of one semester after they have completed a minimum of four years of full-time academic service or the equivalent (i.e., prorated for part-time faculty). Twelve-month faculty members who have completed eight to 11 years of full-time academic service or the equivalent (i.e., prorated for part-time faculty) are eligible for a PDA of two semesters or a full 12 months, respectively. To become eligible for a subsequent award following a PDA, faculty members with nine-month appointments must complete 10 semesters of full-time service; faculty members with 12-month appointments must complete four years of full-time service.
- **Iowa State University.** All members of the faculty employed half-time or more are eligible to apply for a PDA. There is no restriction on length of service to qualify; however, priority may be given to tenured faculty over adjunct and non-tenured faculty and to persons who have not received a PDA in the past five years.
- **University of Northern Iowa.** Policies and procedures relating to PDA at UNI are defined in the Faculty Handbook. A recipient of a PDA is ineligible for a subsequent assignment during the three years following an award.

Review process. The three universities conduct a rigorous review process for each proposed PDA. Peer review and recommendation are the basis of selection at the department and college levels at each university and final approval by the provost. Criteria considered include the impact of the proposed PDA on the institution and the state.

Length of assignments. Professional development assignments are usually for one semester, although they may be up to a year. For PDA 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 offset the replacement costs for other faculty members.

Obligation to institution. Iowa Code §262.9(14) requires that a faculty member return to the institution for twice the length of time of the professional development assignment or to repay the costs associated with the PDA if the faculty member does not return to the institution. Following a PDA, faculty members are responsible for reporting the results of their assignments as specified by Board Policy 2.1.4.R. and institutional guidelines.

Value of professional development assignments. The PDA provide increased visibility and prominence of faculty and departments in research and scholarship and direct application of expanded knowledge to students, Iowans, the nation, and the world. Recipients often compete successfully for external grants that benefit the professors, programs, the universities and the state by generating revenue for core university activities.

Proposed activities. Faculty members engage in a variety of productive activities during their PDA. For example, faculty members perform intensive research, write scholarly books and articles, create new works of art and composition, present papers, work in industry, prepare grant proposals, and develop modeling systems, software, course materials, and multimedia resources for their disciplines. PDA enrich the educational environment of the universities and are essential to the academic vitality of the universities.

Faculty replacement costs. Estimates of the replacement costs for faculty members who are on professional development assignment are in the table below.

- At SUI, the total projected cost of the program for 2018-19 is \$211,256. For the recommended awards, costs will be reduced, where possible, by having colleagues cover courses or deferring non-required courses to a later time.
- 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 the department reassigns 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. FY2019 costs, net of salary savings, are \$116,045.
- At UNI, replacement funds are the responsibility of the colleges and departments of the PDA recipients; no central funds are provided. In some cases, departments may increase class size or curtail course offerings to cover the faculty members' reduced course load while on PDA. Some departments may hire adjuncts so that courses necessary for students' academic progress can be offered. The estimated costs for adjunct salaries and required benefits in these cases total approximately \$255,000.

**BUDGETED REPLACEMENT COSTS  
FY 2015 – FY 2019**

	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
SUI	\$162,446	\$173,280	\$136,668	\$201,851	\$211,256
ISU	\$131,433	\$144,120	\$145,386	\$191,815	\$116,045
UNI	\$145,000	\$170,000	\$187,000	\$191,808	\$255,000
<b>REGENT TOTAL</b>	<b>\$438,879</b>	<b>\$487,400</b>	<b>\$469,054</b>	<b>\$585,474</b>	<b>\$582,301</b>

Proposed professional development assignment recipients by key demographics.

- Men: 75 PDA proposals (67.5% of total PDA proposals) Men represent 59.8% of the total number of faculty in PDA-eligible classifications.
- Women: 36 PDA proposals (32.5% of the total PDA proposals) Women represent 40.2% of the total number of faculty in PDA-eligible classifications.
- Racial/ethnic minorities: 42 PDA proposals (38% of the total PDA proposals) Racial/ethnic minorities represent 18.4% of the total number of eligible faculty.
- Average length of service for the proposed PDA recipients:
  - 12.7 years at SUI
  - 11.8 years at ISU
  - 16.6 years at UNI

FY 2019 PROPOSED PDA BY GENDER AND RACE/ETHNICITY  
UNIVERSITY OF IOWA

Race/Ethnicity	Total number of faculty (tenured or tenure, clinical, or research track)			Number who may be eligible for award (tenured or tenure, clinical, or research track; full and associate professors)			Number who applied			Number approved to request an award		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Hispanic	52	44	96	36	24	60	2	4	6	1	3	4
American Indian or Alaska Native	2	3	5	2	2	4	0	0	0	0	0	0
Asian	181	85	266	124	40	164	10	3	13	9	3	12
Black or African American	26	26	52	17	16	33	0	0	0	0	0	0
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0	0	0	0	0	0	0
White	1092	681	1773	863	426	1289	36	16	52	29	9	38
Two or More Races	6	8	14	3	6	9	0	0	0	0	0	0
R/E Unknown	37	22	59	23	10	33	0	2	2	0	2	2
Nonresident Alien/Intl.	65	29	94	3	2	5	0	0	0	0	0	0
<b>Total</b>	<b>1461</b>	<b>898</b>	<b>2359</b>	<b>1071</b>	<b>526</b>	<b>1597</b>	<b>48</b>	<b>25</b>	<b>73</b>	<b>39</b>	<b>17</b>	<b>56</b>

FY 2019 PROPOSED PDA 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	33	33	66	32	33	65	2	3	5	2	3	5
Am. Indian/Alaska Native	3	1	4	3	1	4	1	0	1	1	0	1
Asian-Am.	198	75	273	193	74	267	14	2	16	12	2	14
Black/African Am.	31	15	46	30	15	45	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	4	7	11	4	7	11	0	0	0	0	0	0
Total Minority	270	131	401	263	130	393	17	6	23	15	6	21
White	866	601	1,467	817	556	1,373	19	10	29	14	8	22
Unknown R/E	0	0	0	0	0	0	0	0	0	0	0	0
Nonres. Alien/Intl.	60	41	101	59	40	99	0	0	0	0	0	0
<b>TOTAL</b>	<b>1,196</b>	<b>773</b>	<b>1,969</b>	<b>1,139</b>	<b>723</b>	<b>1,865</b>	<b>36</b>	<b>16</b>	<b>52</b>	<b>29</b>	<b>14</b>	<b>43</b>

FY 2019 PROPOSED PDA 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	11	5	16	7	3	10	0	0	0	0	0	0
Am. Indian/Alaska Native	0	1	1	0	1	1	0	0	0	0	0	0
Asian-Am.	27	28	55	23	16	39	5	0	5	5	0	5
Black/African Am.	8	6	14	7	2	9	0	0	0	0	0	0
Native Hawaiian/Pacific Islander	1	0	1	1	0	1	0	0	0	0	0	0
Two/more races	1	3	4	1	1	2	0	0	0	0	0	0
Total Minority	48	43	91	39	23	62	5	0	5	5	0	5
White	293	305	598	190	160	350	2	7	9	2	5	7
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
<b>TOTAL</b>	341	348	689	229	183	412	7	7	14	7	5	12

FY 2019 PROPOSED PDA 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	96	82	178	75	60	135	4	7	11	3	6	9
Am. Indian/Alaska Native	5	5	10	5	4	9	1	0	1	1	0	1
Asian-Am.	406	188	594	340	57	397	29	5	34	26	5	31
Black/African Am.	65	47	112	54	33	87	0	1	1	0	1	1
Native Hawaiian/Pacific Islander	2	0	2	2	0	2	0	0	0	0	0	0
Two/more races	11	18	29	8	14	22	0	0	0	0	0	0
Total Minority	585	340	925	484	168	652	34	13	47	30	12	42
White	2,251	1,587	3,838	1,870	1,142	3,012	57	33	90	45	22	67
Unknown R/E	37	22	59	23	10	33	0	2	2	0	2	2
Nonres. Alien/Intl.	125	70	195	62	42	104	0	0	0	0	0	0
<b>TOTAL</b>	2,998	2,019	5,017	1,955	1,194	3,801	91	48	139	75	36	111

**Attachment A**

**University of Northern Iowa Faculty and Professional Development Projects**

**Chin, Martin**, Professor, Chemistry and BioChemistry, 18 Years of Service, Spring Semester  
*Catalytic Silylation of Pyridine with Diruthenium Complexes*

The construction of complex molecules that benefit society, like pharmaceuticals, requires a constant supply of new chemical building blocks. These chemical building blocks then allow for the synthesis of new molecules to occur. To this end, the study seeks to optimize a reaction that converts pyridine, a relatively unreactive molecule, into a silylpyridine in a single step. The silylpyridine can then be used as a building block for the construction of more complex molecules. Four diruthenium catalysts will be tested to optimize the amount of pyridine that is converted into the silylpyridine product. This work will allow the researcher to maintain a dynamic and active research program and will help strengthen any renewal applications for external funding. The immediate benefits of this work to the university and the state of Iowa will be the continued graduation of well-trained chemistry and biochemistry majors from UNI who have participated in undergraduate research. These graduates will go on to graduate school, professional schools or enter the workforce with all of the benefits that undergraduate research provides. UNI undergraduates who participate in research will acquire hands on experience with a variety of instruments, develop critical thinking skills, improve their communication skills and learn how to persevere when attempting to solve a scientific problem.

**Connors, Thomas**, Associate Professor, History, 20 Years of Service, Spring Semester  
*The Politics of Pantheons: How Nations Harness the Power of their Dead*

The proposed research will produce a book manuscript on national pantheons around the world. Using an interdisciplinary approach, the study will examine places where the nation's great are buried together in a temple or park designed to impress visitors, encourage patriotism, and provide a sacred space for state ceremonies. Some of the most iconic names of history and culture are commemorated in such places: Rousseau, Galileo, Dickens, Tchaikovsky, and Gandhi, among others. The proposed work will use evidence from 55 pantheons in 44 countries to draw conclusions about how they are created, decline, or evolve. It will compare how decisions about who is included, what controversies arise, and how changes are made. This approach will offer a transnational perspective on an unexplored global phenomenon found in Buddhist, Christian, Hindu, Jewish, and Muslim cultures as well as in the service of republics, kingdoms, dictatorships, and communist states on five continents. It will contribute to a developing field of scholarship on the intersection of nationalism, landscape, and treatment of the dead. The plan is to use the PDA semester to undertake three research trips to broaden the cultural parameter of the study and allow completion of a book manuscript by Fall 2019. This work will contribute to the university, community, and citizens of Iowa by increasing recognition of the power of gravesites as teaching tools and for developing an appreciation of our past and pride in our shared heritage, just as pantheons do at a national level.

**Dubord, Elise**, Associate Professor, Languages and Literatures, 4 Years of Service, Spring Semester  
*Language and Immigration in Southeast Spanish: The Social and Cultural Context of Language Contact*

This ethnographic research project will examine the social and linguistic adaptation of immigrants from Latin America, North Africa and Eastern Europe in the Region of Murcia in southeast Spain. More specifically, this research will focus on immigrants' access to language resources; their social, cultural, and linguistic adaptation; and preexisting populations' reactions to and interactions with immigrants. The researcher will explore the local impact of immigration policies on local populations, adult immigrants' access to Spanish language classes, and the provision of language services (e.g. translation). This research will be accomplished through qualitative research (e.g. focus groups, interviews and participant observation) with immigrant populations in collaboration with immigrant-serving institutions and agencies. This investigation will provide a productive point of comparison with the researcher's previous body of research on language and immigration in the United States in dialogue with a growing field of comparative migration studies. This PDA application has been submitted in tandem with a Fulbright Scholar application (under review) to teach and conduct research at the Universidad de Murcia in the semester preceding the PDA. The research project and international experience in Spain will benefit the University and the people of Iowa by informing the content and design of the courses taught related to language, immigration and bilingualism; enhance the researcher's work on campus, in the community, and through campus-community partnerships with

immigrants; and allow the investigator to expand the breadth of her international experience and boost her Spanish language skills, which is essential for a member of the Spanish department.

**Gallagher, Deborah J**, Professor, Special Education, 26 Years of Service, Fall Semester  
*Probing the Interconnections of Disability and Animal Rights: With Implications for Equitable Schooling for Students with Disabilities*

Through an analysis of disability studies scholarship, animal rights literature, and relevant theoretical and philosophical literature, this project aims to investigate the way deeply held conceptions about the human/animal divide may contribute to disability discrimination. The human/animal divide merits examination for at least two reasons. First, conceptual clarity is often lacking in the more abstract discussions of this relationship. Second, because of this lack of clarity, the relationship is rarely understood with the practical issues and problems concerning the schooling of children who are labeled as having disabilities. Nonhuman animals are denied rights on the Kantian basis that they lack specific cognitive abilities that humans possess, such as the ability to form a *theory of the self* and the capacity to envision one's past and future. Ability is therefore central to our comparatively superior status as humans. But if being human as opposed to animal is predicated on ability, what does this mean for disabled people? This question is not merely philosophical: it has very real consequences. For example, prominent animal rights activist and *Princeton University* bioethicist Peter Singer has long argued for the legalizing euthanasia of severely disabled infants and elderly people, a practice that is legal in the Netherlands under the Groningen Protocol. Further, animal rights legal scholars have successfully made the case that the great apes should have rights given their superior cognitive abilities relative to those of severely intellectually disabled humans. This exploration may hold important insights to resolve the disproportionate, excessive, and harmful disciplinary interventions special education students receive, both in Iowa and across the nation.

**Iqbal, Mohammad**, Professor, Earth and Environmental Sciences, 23 Years of Service, Fall Semester  
*International Research Collaboration: Study of Highly Polluted Bagmati River to Prevent Environmental Hazard of an Urban Population in Nepal*

Industrial pollutants as well as nutrients in agricultural runoff are unintended exports having adverse effects on quality of natural water. There is no natural resource more important than water to the economy and quality of human lives. This PDA proposal is in regards to an international research collaboration in progress between the Earth & Environmental Sciences Department at UNI and the Geology Department at Tribhuvan University, Kathmandu, Nepal. The study will focus on the environmental analysis of a highly polluted river in Kathmandu, called the Bagmati River. Phase 1 of the project (baseline water quality, 2015-17) has been funded by the U.S. National Science Foundation. This PDA proposes Phase 2 in 2018 which deals with land surface mapping and analysis of social and health issues that impact close to two million people living in the watershed. It is a key source of surface water to its inhabitants and a high value resource for drinking water supply, irrigation, industries, and cultural heritage. Unfortunately, the river is under tremendous pressure from the growth of municipal and industrial activities in recent decades. The long term goals of this project will be to (1) give UNI students exposure to global environmental issues; (2) engage in international collaboration to develop field procedures applicable to watersheds across national and international boundaries; (3) conduct innovative research and provide technical expertise to prevent a probable human environmental disaster, and (4) create opportunities for faculty/student exchange or a study abroad program between the two universities.

**Lee, W. M. Eric**, Associate Professor, Accounting, 6 Years of Service, Spring Semester  
*Reading between the Lines: An Empirical Analysis of the Relationship between Companies' Responsibility Reporting and their Environmental, Social and Governance (ESG) Performance*

With greater awareness and demand by stakeholders, corporate responsibility reporting has become an increasingly prevalent phenomenon in the past decade. The increase in readership over such reports has also arguably enabled firms to use this as an opportunity to enhance their credibility. This research study will analyze the different types of narratives adopted in such reporting. Using a sample dataset from the past 10 years (2006-2015), the study will present descriptive statistics and investigate the different narrative characteristics for firms across different industries. By examining a range of readability metrics, this investigation seeks to understand whether and how narrative manipulation can possibly impact firms' environmental, social and governance (ESG) performance. Further robustness tests will also seek to triangulate the reporting quality and ESG performance with actual firms' performance in order to ascertain the perception versus reality of such reporting, conditional on the firms' industry types. Issues related to

sustainability and environmental well-being have been a centerpiece of UNI's educational mission. Students at UNI and Iowans, in general, have become increasingly aware of environmental and climate change issues of late. Conventional wisdom has it that as environmental stakeholders in our society, one should read more so as to become better informed. By providing useful results from carefully-executed research, the goal of a researcher and teacher is to demonstrate and to discern when reading corporate responsibility reporting literature, so as not to succumb to possible manipulation in the name of legitimization.

**MacLin, Kim**, Professor, Psychology, 16 Years of Service, Fall and Spring Semester  
*Experimental Psychology Book Project*

This project will integrate visual literacy and spatial thinking to advance students' overall literacy skills while improving their content knowledge in geography. Concurrent with a National Geographic Society National Initiative and in collaboration with National Geographic Education, the researcher will lead the development of a data visualization toolkit, online modules, and a professional development toolkit that support state standards, including those in Iowa, that now employ secondary (grades 6-12) social studies teachers to enhance students' abilities in reading, writing, speaking, and conducting research by means of the social science curriculum. The research design will include both qualitative assessments and a controlled quasi-experimental technique to evaluate how the curricular materials enhance students' understanding of geography standards, promote their spatial thinking skills, and advance their literacy abilities. This Professional Development Assignment will elevate UNI by raising its visibility through peer-reviewed research publications, demonstrating a high potential to bring in additional external funding, providing clear opportunities for undergraduate research, and linking UNI with a highly visible National Geographic Society nationwide initiative. Among Iowa teachers and school districts, there is strong, unmet demand for exemplary social science curricular materials that advance literacy and this project will provide a concrete means for addressing this by disseminating model materials and supporting professional development through the Geographic Alliance of Iowa and its partner organizations such as the Iowa Department of Education Statewide Social Studies Leadership Team.

**Palczewski, Catherine H.**, Professor, Communication Studies, 23 Years of Service, Fall Semester  
*Bodies That Argue: Visual Arguments of Woman Suffrage, 1909-1919*

The full range of arguments for and against women suffrage cannot be understood without studying verbal and visual arguments. On the anti-suffrage side, Congressional representatives and the general culture posited that the vote would coarsen women and that women were not coarse enough to handle the rigors of voting. On the pro-suffrage side, the 1913 D.C. woman suffrage parade; the 1917-1919 pickets, protests, and arrests of the Silent Sentinels; and the 1919 Prison Special represent complex mixes of discursive and presentational argument in which women enacted their citizenship while simultaneously exposing their vulnerability to the state and to their ostensible male protectors. The National Woman's Party's rhetorical actions constitute eloquent responses to the complex set of arguments levied against suffrage. The purpose of this PDA is to complete a book entitled: *Bodies That Argue: Visual Arguments of Woman Suffrage, 1909-1919* and four chapters to be published by Michigan State University Press. The work related to this book will offer three benefits to UNI and the citizens of Iowa. First, the researcher expects continued invitations to lecture on the topic, which will contribute to UNI's national reputation and exposes faculty and students at other universities to UNI scholarship. Second, this research will enhance and enliven classes in Visual Rhetoric, Women's and Gender Studies, Gender Issues in Communication, and Rhetorical Criticism. Third, this work will contribute to understandings of citizenship, engagement and civic obligation.

**Posinasetti, Nageswara Rao**, Professor, Technology, 16 Years of Service, Spring Semester  
*Application of LCA for Sustainable Machining of Titanium Using MQL with Vegetable Oils and Solid Lubricant Particles*

Ti-6Al-4V is the most commonly used titanium alloy for structural parts in aerospace applications due to its high strength and toughness. During machining, 80% of heat may get into the cutting tool, increasing the temperature in the machining zone to as high as 1100°C which can be controlled by cutting fluids (coolants). Since cutting fluids pose problems during usage and disposal, it is advocated to reduce their application by adopting Minimum Quantity Lubrication (MQL) of biodegradable vegetable cutting fluids for sustainable machining. During the PDA, the researcher will it is planned to develop a life cycle assessment (LCA) method for MQL with vegetable oils and different solid lubricant particles. The first part will consist of



developing theoretical foundations for the analysis by identifying various physical processes in machining and thermodynamic relations for the process. From this analysis, a complete model of machining will be developed by including all the components that can be inputs to an LCA tool. The data will then be gathered from published literature and experimentation so that LCA analysis can be completed. From the results of the analysis it will be possible to complete the life cycle impact assessment to identify methods that will help reduce the environmental impact of titanium machining. Research on various aspects of cutting fluids has been going on for some time. This research will consolidate the past research and would provide a novel and systematic tool to carryout research in sustainable manufacturing. It will provide a vehicle for graduate students for further research in various aspects of manufacturing.

**Rawwas, Mohammed**, Professor, Marketing, 21 Years of Service, Spring Semester

*Organizational Justice Theory: A Comparison of the Ethical Values of Iowan and Chinese Individuals*

Organizational justice theory is the process in which a worker judges the practices of management as right or wrong based on standards related to ethics, fairness, or equity. A paradigm of justice theory classified it as a three-component model consisting of distributive (i.e., resource allocation), procedural (i.e., lack of bias), and interactional (i.e., respect and propriety) justices. While the three justices are important to workers' judgements of fairness, workers of diverse cultures may view one stage as more significant than the others, consequently supporting the respective school of thought. For this study, data will be collected from two groups of workers, one from Iowa and another from China. The purpose of this study is twofold: 1) to identify differences between the two groups in preferences for components of the organizational justice theory, and 2) to compare their ethical values. If differences exist between the two groups/cultures, the study will attempt to understand why one group/culture prefers one component of organizational justice theory to the others and what its respective ethical standards are. Due to diversity in the workplace, management may tailor their procedures and policies according to the needs of their workers. Gaining insight into a group's preferred component of justice theory may guide management in adopting more meaningful and fair procedures, resulting in stronger performance and higher job satisfaction. The results of this study will produce powerful benefits for UNI, Iowa organizations and employees alike. These include greater trust and commitment, improved worker satisfaction, enhanced citizenship behaviors, and diminished conflict.

**Tracey, Grant, Professor**, Languages and Literatures, 21 Years of Service, Spring Semester

*Shot, Reverse-Shot*

*Shot, Reverse-Shot* is the fourth Hayden Fuller crime novel and will be set in Montréal, 1966. The previous three were set at the author's hometown, Toronto. For this PDA, Professor Tracey plans to live and write in Montréal for eight weeks to complete an initial draft (60,000—65,000 words) and take in the cultural and physical landscape of the city. The novel will feature a corrupt film director, a sleazy exploitation producer, several actors, a renegade motorcycle gang (The Northern Arrows), First Nations peoples, and a murder on a film set. The novel will be situated within the hardboiled traditions of Mickey Spillane, Jim Thompson, and Raymond Chandler, but will break new ground by exploring Hayden's inner journey (his coming to terms with his victimization at the hands of his father) and a storytelling technique of narrative compression and free-indirect discourse that creates greater waves of uncertainty. Fuller may have a 1950s crewcut but he's a liberal, and unlike the typical private eye he judges events without dismissing people. The novel will be a hybrid of melodramatic entertainment (the world is full of irrational chaos that cannot be explained away) and psychological realism (Hayden coming to terms with his past and his own resulting sexual dysfunction). The novel will bring distinction to UNI because it both affirms prior private eye discourse while deconstructing some of its more pernicious side effects: anti-woman, anti-gay. Moreover, Professor Tracey's temporary immersion into French culture will model for his creative writing students at UNI the importance of on-location work, how writers benefit from inhabiting real-world spaces to improve upon the fictional spaces, or world building, they create on the page.

**Zigarovich, Jolene**, Associate Professor, Languages and Literatures, 5 Years of Service, Spring Semester

*Preserving Clarissa, and Other Morbid Curiosities in the Eighteenth-Century Novel*

Without a book-length study of death in eighteenth-century Britain, historical facts concerning funerary practices and the culture's overall relationship with mortality are only beginning to be understood. This study will remedy this critical neglect in part by foregrounding the political work and materiality of dead bodies

and uncovering ways in which fiction embeds cultural attitudes towards death and dying. By incorporating a variety of historical discourses—wills, undertaking histories, medical studies, philosophical treatises and religious tracts—this project will illuminate a shift in control over death and the body from religious institutions to the individual, which resulted in secular, aesthetic approaches to death and mourning rituals. *Preserving Clarissa, and other Morbid Curiosities in the Eighteenth-Century Novel* will reveal that the body itself—its parts, and its preserved, visual representation—functioned as erotic memento, and it suggests that preserved remains became symbols of individuality and subjectivity. To support this, this project will uniquely intersect fictional examples with the growing popularity of the undertaking trade and funerary rituals, preservation methods, anatomical models, and *memento mori* and relic culture. This project will thereby force us to reassess the eighteenth-century response to and representation of the dead and dead-like body, and its fetishized purpose and use in fiction. *Preserving Clarissa* will build on the researcher's earlier work and will explore aspects of the eighteenth-century novel considered throughout her career. This research will benefit UNI and the citizens of Iowa in copious ways, including scholarship such as conference talks, presentations, an essay and book publications, by enhancing teaching and content courses, and by nationally and internationally representing the high quality of work UNI faculty produce.

## Attachment B

### Iowa State University Faculty and Professional Development Projects

**ANDERSON, CRAIG A.**, Distinguished Professor, Psychology, 18 years of service, spring semester  
Professor Anderson, the world's leading expert on violent video game effects, as well as the general effects of media on adolescents and young adults, proposes an assignment to work on two book projects, The One Hour Expert: FAQs about Media Violence, and an edited volume on Anderson's General Aggression Model. This work, which will be conducted with colleagues in Australia, Canada, and the U.S., will also lead to new research collaborations and funding opportunities.

**BASTAWROS, ASHRAF F.**, Professor, Aerospace Engineering, 18 years of service, spring semester  
Professor Bastawros proposes a PDA to develop a new research thrust in the biomechanics of blunt force trauma, which are typically associated with cases involving sports and playground accidents, abuse, suicide, or homicide. Understanding the minimum amount of force necessary to cause a particular type and severity will aid in both the design of protective gear and in forensic assessments. The results of this work will be shared in peer-reviewed journals and conferences.

**BIGGS, STEPHEN**, Associate Professor, Philosophy & Religious Studies, 6 years of service, spring semester  
Kindergartners learn that most humans have exactly five senses – sight, touch, hearing, taste and smell. Recent work in perceptual psychology, however, challenges this standard view. Professor Biggs' proposed PDA will allow him to complete a book and companion website that help the public think more broadly about how many senses they have, and experience firsthand a wider range of perceptual phenomena. The results will also be used in Biggs' Iowa State undergraduate and graduate courses.

**BREMER, JEFF**, Associate Professor, History, 6 years of service, spring semester  
Professor Bremer proposes a PDA in China, where he would teach three courses – the history of American capitalism, the early American republic, and the American frontier – to help Chinese students better understand U.S. history, culture and government. The experience will provide a new perspective on teaching U.S. history overseas, and create opportunities for future collaborations with Chinese institutions.

**BROWN, ERIC ADAM**, Associate Professor, Apparel, Events and Hospitality Management, 6 years of service, fall semester  
Professor Brown will use the proposed PDA to examine the role of public speaking and communication on self-confidence and career success within hospitality management industries – “soft skills” that are frequently at the top of the list for graduates. Expected outcomes from this work include peer-reviewed publications and presentations, an external funding proposal, and educational/professional development modules for Iowa State students and industry professionals.

**CALL, ANSON**, Associate Professor, Graphic Design, 14 years of service, fall semester  
Professor Call will create a science fiction novel during his proposed assignment that includes content generated through simulation and/or visualization, as well as an augmented reality companion to the novel. The work will expand the creative process writers can use to develop and deliver content, directly impacting numerous courses in the College of Design, and leading to peer-reviewed conference presentations.

**CASTELLANO, MICHAEL**, Associate Professor, Agronomy, 7.5 years of service, spring semester  
Iowa croplands lose more than 500 million pounds of nitrogen each year, representing an economic loss to farmers, and damage to the environment. Professor Castellano proposes a PDA to the Swiss Federal Institute of Technology to study systems modeling to increase nitrogen use efficiency and prevent nitrogen loss. The results of this work will have important economic and environmental implications, benefiting all Iowans, and will also be incorporated into Castellano's agronomy courses.

**CERVATO, CINZIA**, Morrill Professor, Geological & Atmospheric Sciences, 16 years of service, spring semester  
Professor Cervato will use the proposed PDA to explore the use of educational e-gaming for geoscience and sustainability education, and approach to virtual learning that takes advantage of the popularity of

computer games, makes field locations more accessible to students of all abilities, and allows for the presentation of multiple scenarios. Cervato will collaborate with colleagues in the United Kingdom in this work, and share her experience with the Tall Grass Prairie Project.

**CHU, CHRIS CHONG-NUEN**, Professor, Electrical & Computer Engineering, 18 years of service, spring semester

Professor Chu proposes an assignment to visit National Tsing Hua University in Taiwan, where he will conduct research in physical design issues related to very-large-scale integration (VLSI), the process of creating an integrated circuit by combining thousands of transistors into a single chip. Chu will develop better techniques to design VLSI circuits and systems, gain exposure to the cutting-edge semiconductor research environment, establish research collaborations, and publish his results in journals and conferences.

**CROSS, SAMANTHA NICOLE NATASHA**, Associate Professor, Marketing, 8 years of service, spring semester

Professor Cross will visit Barbados during her proposed assignment to conduct an ethnographic exploration of a unique market on the island, and to conduct a case study comparing the brand equity of two prestigious hotel brands. The findings will be incorporated into Cross' brand management course at Iowa State; result in peer-reviewed journal articles; and establish connections within the tourism and hotel industries.

**DONG, LIANG**, Associate Professor, Electrical & Computer Engineering, 10 years of service, fall semester

Professor Dong proposes an assignment to visit two renowned research groups in the area of microelectromechanical systems sensors and nanomaterials. These visits will help Dong establish strong collaborations toward an international and multi-institutional Internet of Agricultural Things, and his findings will be incorporated into Iowa State undergraduate and graduate courses. He will also explore a Small Business Innovation Research grant to help commercialize moving sensor technologies.

**DUBISAR, ABBY M.**, Assistant Professor, English, 6 years of service, spring semester

Professor Dubisar proposes a PDA to analyze how Iowa State students brought attention to the university's role in the development of genetically modified foods in 2015. This work will be published as part of a book on food, farming and feminism that addresses rhetorical strategies used by women to make arguments about sustainability and Iowa's role in preserving an ecologically viable future.

**GOGGI, ALCIRA SUSANA**, Professor, Agronomy, 23 years of service, January-July (6 months)

Professor Goggi proposes a PDA to evaluate alternative insect and disease control options to protect corn and soybean seed health, food safety, and security. This work will also provide new options to address resistance management challenges, and contribute to the Iowa Pest Resistance Management Plan. Results will also be incorporated into Goggi's Iowa State courses, and better qualify her to participate in multidisciplinary teams and seek extramural funding.

**GREDER, KIMBERLY ANN**, Associate Professor, Human Development & Family Studies, 24 years of service, January-December (12 months)

Professor Greder will develop a deeper understanding of the complex factors that shape Latino family health and well-being. Greder's work will include developing manuscripts, educational materials, presentations, and trainings for extension professionals, community organizations, and students interested in community based approaches to support Latino families with low household incomes and limited English proficiency.

**GREVSTAD-NORDBROCK, THEODORE**, Assistant Professor, Community & Regional Planning, 3 years of service, spring semester

Professor Grevstad-Nordbrock proposes an assignment in Sydney, Australia to support his work in heritage preservation planning. The experience will create a better understanding of how governmental preservation policies unintentionally drive gentrification and residential displacement, and lead to recommendations on updating policies to be more equitable. Students in Iowa State's new Preservation and Cultural Heritage program will also benefit from greater exposure to preservation policies in other nations, as well as study abroad opportunities.

**HAN, GANG**, Associate Professor, Greenlee School of Journalism & Communication, 8 years of service, full academic year

Professor Han will visit Hong Kong and Beijing during the proposed PDA, analyzing how mainstream media outlets in China have portrayed products that are made in the U.S. compared with those made in China. This work will lead to better understanding of how international public opinion and public relations are shaped by mass media in globalized markets, which is particularly important for Iowa agricultural and manufacturing exports.

**HILLIARD, KATHLEEN**, Associate Professor, History, 9 years of service, full academic year

Professor Hilliard will use her proposed PDA to continue researching her second book, *Bonds Burst Asunder: The Revolutionary Politics of Getting By in Civil War and Emancipation, 1860-1867*, which examines how ordinary southerners came to create capitalism and freedom out of the ruins of the wartime Confederacy. The book is expected to attract a broad reading audience, and result in significant interest at academic conferences.

**HUANG, XIAOQIU**, Professor, Computer Science, 17 years of service, full academic year

The proposed PDA will allow Professor Huang to lead a team of investigators from multiple institutions to conduct research and develop a large-scale grant application for finding lineage-specific genes in thousands of fungal genomes, and better understanding their evolution and function. The computational techniques and biological knowledge from this work will also be incorporated into Huang's undergraduate and graduate courses.

**KIM, SANG W.**, Associate Professor, Electrical & Computer Engineering, 14 years of service, spring semester

Professor Kim proposes an assignment to develop new spectrum-sensing technology for cognitive radios, a new form of wireless communication that enables greater efficiency of the radio spectrum by detecting which channels are in use, and which are not, allowing users to access unused spectrum while minimizing interference. The research findings will be used to create new course materials, funding proposals, and has the potential to provide low-cost Internet access to rural areas in Iowa.

**KREISER, PATRICK M.**, Associate Professor, Management, 3 years of service, fall semester

Professor Kreiser will travel to Indiana University's Kelley School of Business during his proposed assignment. The Kelley School is the world's top ranked program for entrepreneurship research, and the top U.S. public university program at both the undergraduate and graduate levels. Kreiser's visiting appointment will allow him to explore best practices that can be incorporated in Iowa State's new entrepreneurship degree programs.

**KRIER, DANIEL A.**, Associate Professor, Sociology, 13 years of service, spring semester

Professor Krier will use the PDA to conduct research for his book project, *Economic Theology: The Religious Foundations of Capitalism*, which examines religiously legitimated systems of belief that align economic value with moral values. The book will be the foundation of additional work in the future, including research with Iowa State colleagues into changing economic, political and social culture changes in Iowa and the Midwest.

**LENCE, SERGIO HORACIO**, Professor, Economics, 24 years of service, spring semester

Professor Lence's proposed PDA includes developing a model to better understand the drivers of agricultural productivity, examine the relative contribution of these drivers to productivity, and explore ways to improve productivity measures in the most efficient manner. Lence will conduct his research at the Food and Agriculture Organization of United Nations, in Rome, as well as institutions in Spain and the Netherlands. The results will result in publications and external funding proposals, and be used in Iowa State economics courses.

**LIU, HAILIANG**, Professor, Mathematics, 15 years of service, full academic year

Professor Liu will design, analyze, and numerically validate high order algorithms to simulate complex systems in selected application areas, including particle aggregation and drift-diffusion dynamics in biological channels. The results will be used in ongoing interdisciplinary particle-fluid research at Iowa State, as well as benefit faculty and students through educational and research opportunities.

**MADON, STEPHANIE**, Professor, Psychology, 18 years of service, fall semester

Professor Madon will use the proposed PDA to examine field-based conditions related to firearm fired cartridge case comparisons that may increase human judgment error in the forensic sciences. This work, which has been supported by the National Science Foundation and the U.S. Department of Justice, will also provide opportunities for Iowa State post-doctoral fellows and graduate students, and educate undergraduate students with interests in law enforcement, psychology, and forensics.

**MCQUEENEY, ROBERT**, Professor, Physics & Astronomy, 13 years of service, fall semester

The need for smaller and more powerful computers that consume less energy will require the development of new materials to eventually replace silicon. Professor McQueeney's PDA will use the neutron scattering facilities at the Australian Nuclear Science and Technology Organisation to study potential manganese-based spintronics materials (materials that help transport magnetic information). The results will be reported in scientific journals, and will lead to new research funding proposals.

**MEISSNER, CHRISTIAN**, Professor, Psychology, 4 years of service, full academic year

Professor Meissner conducts research and is an internationally renowned expert on effective interviewing, interrogation, and credibility assessment in law enforcement, military, and intelligence contexts. Meissner will use the proposed PDA to study the psychological factors that produce miscarriages of justice within the criminal justice system, and develop a humane, legal, and evidence-based model of interrogation.

**MIGUEZ, FERNANDO EZEQUIEL**, Associate Professor, Agronomy, 7.5 years of service, full academic year

Increasing demands for food, feed, fiber and fuel, and the challenge of a changing climate, are threatening the sustainability of agriculture and the preservation of natural resources. Professor Miguez will visit the Research Institute for Natural Resources and Agroecology in Argentina during his proposed PDA, where he will apply crop and soil modeling skills to new environments, and develop an improved scientific understanding of agricultural systems performance at a global scale.

**NAIR, AJAY**, Associate Professor, Horticulture, 6 years of service, December-May (5 months)

Professor Nair proposes an assignment in New Zealand to expand his knowledge and understanding of sustainable vegetable production, particularly in the areas of soil fertility, integrated pest management, season extension, produce quality, and production of niche vegetable crops. The results of this work will be incorporated into Nair's research and extension activities, as well as benefit Iowa State horticulture students, and Iowa fruit and vegetable growers.

**PARDO-BALLESTER, CRISTINA**, Associate Professor, World Languages & Cultures, 10 years of service, full academic year

Professor Pardo-Ballester will use the proposed PDA to develop a new Spanish placement test that more accurately places students by incorporating tenets common to task-based language teaching. The project is expected to improve student success in Spanish courses, and benefit test developers, researchers, the department and university, and other institutions with the for a more accurate placement exam.

**RAJAN, HRIDESH**, Professor, Computer Science, 12 years of service, fall semester

Professor Rajan's research is focused on improving software quality and programmer productivity by developing and refining computer programming languages. Rajan proposes a PDA to the University of Bristol in the United Kingdom to develop and international collaborative effort aimed at accelerating research on software code analysis for cybersecurity, including the development of an international virtual cyber infrastructure hosted at Iowa State to better and earlier detect cybersecurity problems.

**ROWLING, MATTHEW JAMES**, Associate Professor, Food Science & Human Nutrition, 10 years of service, fall semester

Professor Rowling proposes an assignment to develop nutritional strategies to prevent and/or ease complications from diabetic kidney disease. Rowling will work with kidney specialists in Massachusetts and South Carolina to answer several important questions critical to the understanding of diabetic complications, benefiting people with diabetes in Iowa and beyond. The results will be used in external funding proposals and manuscripts, and incorporated into a graduate course in diabetes.

**SALAS FERNANDEZ, MARIA G.**, Associate Professor, Agronomy, 9 years of service, spring semester  
Argentina is one of the world's most important agricultural producers and commodity exporters, with "corn belt" soils, climatic conditions, and management practices similar to Iowa. The proposed PDA will allow Professor Salas Fernandez to establish interdisciplinary collaborations in the areas of plant breeding, biotechnology, physiology, genomics, functional genomics, and agronomy; enrich the content of her Iowa State courses, and provide opportunities for ISU students to study abroad.

**SHARMA, ANUPAM**, Assistant Professor, Aerospace Engineering, 6 years of service, full academic year  
Unmanned aerial vehicles (UAVs) have seen an unprecedented growth in both numbers and applications. Professor Sharma proposes a PDA to address the challenges of ensuring performance in changing environments to prevent stalls, and reducing UAVs' noise signatures. Outcomes of the project include the development of an international collaborative team that can successfully compete for research funding, as well as publications, patents, and additional research in the general area of UAV technology.

**SPRY, PAUL**, Professor, Geological & Atmospheric Sciences, 34 years of service, spring semester  
Professor Spry will study how the chemistry and geological setting of igneous rocks (formed from magmas) dictate how, why and where gold and silver tellurides form in his proposed assignment in the United Kingdom. Understanding the chemistry of tellurium and how it can be found in nature will enhance the sustainable development of solar panels, contributing to renewable energy in Iowa, and will be incorporated into Spry's undergraduate and graduate level mineralogy courses at Iowa State.

**TAN, XIAOLI**, Professor, Materials Science & Engineering, 15 years of service, spring semester  
Professor Tan proposes an assignment in Singapore to extend his research on lead-free piezoelectric ceramics, environmentally friendly materials that are critical in non-destructive evaluation, precision agriculture, and ultrasound medical imaging. The visit will help Tan establish research programs on ceramic films and coatings at Iowa State, expand the contents of his courses, and create research positions for undergraduate and graduate students.

**TOTH, AMY**, Associate Professor; Ecology, Evolution, AND Organismal Biology; 7 years of service; full academic year  
Pollinator declines are a major area of research and public interest, as they can severely impact ecosystems and threaten our food supply. Professor Toth proposes an assignment to Argentina to develop a trans-American partnership to identify the causes of declines of honeybees and bumble bees, in order to inform the development of new management and conservation strategies. The results of this work will also help conservation efforts in Iowa, and increase Iowa State's international visibility.

**TSOU, JONATHAN**, Associate Professor, Philosophy & Religious Studies, 8 years of service, fall semester  
Professor Tsou's research examines the philosophy of psychiatry and its implications for the classification of mental disorders, particularly natural classes of disorders such as schizophrenia and depression that are constituted by a set of stable biological mechanisms. Tsou will use the proposed assignment to make substantial progress on a book project on natural kinds and psychiatric classification, as well as support his teaching in this area.

**VAZOU, SPYRIDOULA**, Associate Professor, Kinesiology, 7 years of service, fall semester  
Professor Vazou proposes an assignment to visit colleagues at the University of Texas at Austin to develop large-scale classroom-based physical activity programs, and to develop instructional videos for the *Move for Thought* program that will be included in the methods course for elementary education students at Iowa State. Her work will also be shared with practicing educators across Iowa through Team Nutrition, the Iowa Department of Education, and ISU Extension and Outreach.

**WANG, JIGANG, PROFESSOR**, Physics & Astronomy, 9 years of service, fall semester  
Professor Wang will use the PDA to address the challenges of pushing the switching speed-limit and integration density in logic and memory devices into the terahertz and sub-20 nanometer regime, which underlies the entire field of information processing, recording, storage, and communication. This work will help make Iowa State the birthplace for a new discipline of non-equilibrium quantum microscopy research, leading to significant funding and visibility for the university.

**WANG, KEJIN**, Professor; Civil, Construction and Environmental Engineering; 17 years of service; full academic year

Professor Wang will use her PDA to explore national and international collaborations in the areas of ultra-high strength, high resilience concrete, and concrete thinning. The results of this work will be incorporated into Wang's Iowa State concrete courses; into her current work on ultra-high performance fiber reinforced concrete for blast and fire resistance; and result in large, collaborative research proposals.

**WANG, QIAN**, Associate Professor, Accounting, 8 years of service, fall semester

Professor Wang's proposed assignment will be used to examine auditor independence, which affects the quality of the auditing process; and also how the financial expertise of chief executive officers and chief financial officers affects the outcome of initial public offerings (IPOs). The results of Wang's work will be published in high quality journals, be incorporated into Iowa State accounting courses, and lead to new research projects.

**WEBER-FEVE, STACEY**, Associate Professor, World Languages & Cultures, 11 years of service, full academic year

Professor Weber-Feve proposes a PDA to complete a book project, Restaging Comedy: Comic Play and Performance in Women's Contemporary Cinema in France, the first of its kind to explore a specialized examination of women's roles in the evolution of French cinematic comedy. Weber-Feve will also use material generated for the book to develop undergraduate courses at Iowa State, of interest to the fields of film studies, women's and gender studies, and cultural studies.

**WOLTERS, TIMOTHY**, Associate Professor, History, 8 years of service, full academic year

Professor Wolters, an expert on how humans adopt and use new information technologies, proposes a PDA to study the 1923 Honda Point naval disaster, which killed 23 sailors, destroyed seven ships, and was the worst naval disaster in American history. Wolters will examine why officers ignored information from their new on-board radio-navigation systems, which accurately reflected the danger, in favor of conflicting information from an older navigational method known as dead-reckoning.



## Attachment C

### University of Iowa Faculty and Professional Development Projects

**AYATI, BRUCE**, Professor, Mathematics, 10 years of service, spring semester

*Title:* Multiscale modeling and simulation of bone tissue engineering and drug delivery systems. During the period of the PDA, Prof Ayati will work with Prof. Aliasger Salem and his laboratory in the College of Pharmacy. The focus will be on understanding and creating mathematical and computer representations of intracellular processes involved in tissue engineering and drug delivery, with a focus on orthopedic systems such as bone and cartilage. Prof Ayati's expertise is in the modeling and simulation of cellular and multicellular processes, including intercellular signaling, and in coupling those processes to ones at the tissue or mechanical scale. Gaining expertise at a lower scale is expected to significantly enhance the predictive capabilities of Prof Ayati's simulations. The expected outcomes are computer simulations that more accurately represent the biomedical systems, with the eventual goal of simulations suitable for patient-specific medicine or the computer-aided design of pharmacological delivery. These will have direct societal benefits to Iowa and beyond, and will provide students at Iowa, in subjects ranging from introductory calculus to numerical analysis, with examples taken from contemporary areas of application.

**BELLI, MERIAM N**, Associate Professor, History, 9 years of service, spring semester

*Title:* Manuscript Writing and Editing: Death in Transit

Professor Belli will be using her PDA to complete a book manuscript, entitled 'Death in Transit,' derived from the research that she conducted in 2016-2017, and building on a first rough draft that she will be writing in 2017-2018. The proposed outcome of this PDA is the submission of Professor Belli's second book manuscript for publication. Professor Belli's work is beneficial to her courses, which touch upon European-Middle Eastern relations; mobility and migration; Diaspora; the intersection of religion and politics; and political loyalties and identity in Europe and the Middle East. The question of inclusion/exclusion of religious minorities, and the question of civil rights are of great pedagogical importance. Professor Belli's work stresses global connections among different societies and religions. Thus, her work contributes to an ecumenical and wide-ranging understanding of mobility, modern life, and death. Her work stresses global connections among different societies and religions, which is a great value for Iowa, whose population has become increasingly diverse over the past decade.

**\*BERG, MARK T**, Associate Professor, Sociology, 4 years of service, fall semester

*Title:* Acute Environmental Stressors and Biological Dysregulation in Adulthood: A Life Course Appraisal

The societal burden of age-related chronic disorders continues to grow. Research suggests that exposure to acute stressors increases inflammatory and metabolic risk, leading to the onset of chronic disease. Prof Berg will examine the pathways that connect stressful experiences across the life-course to biological dysregulation in adulthood. He will collaborate with colleagues at the University of Georgia to examine longitudinal data on the health profiles of young adults. Prof Berg will develop new data constructs conduct multivariate analyses. The project will yield two manuscripts that he will submit for peer review at reputable academic journals. The award time will also allow Prof Berg to develop a program of research on the social determinants of health and enrich his teaching. By incorporating this research into his course materials, students will learn about the health implications of acute stressors. The findings will inform prevention efforts focused on the social origins of chronic disease across the life-course, particularly programs tailored to improve the quality of life of at-risk populations.

**BERN-KLUG, MERCEDES E**, Professor, Social Work, 13 years of service, fall semester

*Title:* Post-Baccalaureate Certificate in Long-term Care Social Work

This proposal is submitted with the intention of improving care provided to nursing home residents in Iowa and in the USA. Social work professor, Prof Bern-Klug (who also coordinates the UI Aging & Longevity Studies Program for undergraduates who want to specialize in working with older adults) proposes to develop the country's first post-baccalaureate online certificate in long-term care social work. The content in the certificate will focus on the provision of psychosocial care for emotional and interpersonal challenges often faced by nursing home residents. Objectives include recruiting and working with a national advisory committee to decide certificate core content, developing and pilot testing three content modules, and developing a strategic plan to market the certificate in Iowa and in the USA. This proposal is one step toward better care in nursing homes, and builds on the demonstrated strengths of Prof Bern-Klug's decades

of scholarship and leadership in gerontological social work, the UI School of Social Work's track record of successful distance education, and other major aging-related resources at the University of Iowa.

**CASTELLANOS, HORACIO**, Associate Professor, Spanish and Portuguese, 6 years of service, fall semester

*Title:* Research for a novel on Central American Immigrants in the US

Prof Castellanos will complete research for his next book. The novel will be focused on Central American immigrants in the United States. It will contain stories that show the cultural patterns immigrants bring from their own countries and how they try to adapt, not always successfully, to the American culture—and the identity crisis related to this process. The project will address three main topics: 1) the savage violence of Central American gangs, its expansion to some American cities and the traumas suffered by its victims; 2) the systematic aggression and peril of their lives that those who come illegally suffered when crossing Mexican territory at the hands of authorities and organized crime; 3) the crisis of many Central American institutions and the destruction of community networks that force people to leave their countries. Through this work Professor Castellanos will shed new light, from a creative literary perspective, on a current social phenomenon with huge political and humanitarian consequences. The research will also result in an undergraduate course on Central American Immigrants in the USA.

**CHAN, KUNG-SIK**, Professor, Statistics & Actuarial Science, 26 years of service, spring semester

*Title:* Big Time-Series Analysis

With the advance of sensor technology, it is increasingly feasible to deploy a large number of sensors with which to measure the state of a dynamical system over a sustained period, resulting in high-dimensional time-series (big time-series) data. Big time-series data may be useful for revealing the dynamics of an underlying activity, e.g., electroencephalography (EEG) data may be useful for detecting abnormal brain activities or using position, velocity, acceleration data to classify the action of a subject into walking, jogging, biking, etc. In practice, the dynamics of a system (as performed by a subject) may be known to belong to one of a few types (e.g., walking, jogging or biking), and it is desirable to classify the actual dynamics into one of the known types, with big time-series data. Prof Chan proposes to develop new, efficient methods for classification and outlier detection with big time-series data. The proposed work enhances teaching related to time-series analysis and statistical inference with big data. Moreover, the developed methodologies will add to the toolkit of big time-series analysis in diverse scientific and quantitative applications.

**CHEATUM, CHRISTOPHER**, Associate Professor, Chemistry, 14 years of service, fall semester

*Title:* Design and Implementation of Accelerated 2D IR Spectroscopy

Two-Dimensional Infrared (2D IR) spectroscopy is a powerful tool for characterizing complex chemical systems. Prof Cheatum has pioneered the application of this technique to study the motions of proteins. He has developed a new approach that will accelerate his experiments by at least a factor of 10, which will enable new experiments and new collaborations that are not currently possible. He plans to redesign his apparatus to incorporate this new approach, which will enable new research directions that will yield new opportunities for federal research funding and raise the profile of the University of Iowa. This work will be an important opportunity for students to build a one-of-a-kind instrument. Professor Cheatum will also develop materials for courses based on this work to teach students about the construction of state-of-the-art laser instrumentation.

**CURTO, ROXANNA N**, Associate Professor, French and Italian, 6 years of service, fall semester

*Title:* Sporting Identities: Global Sports and National Cultures in French and Francophone Literature  
A PDA would allow Prof Curto to work on her book, "Sporting Identities: Global Sports and National Cultures in French and Francophone Literature," the first comprehensive study of the representation of sports in literature from the French-speaking world. This study examines aspects of physical culture—such as exercise, leisure and sports—in literature written in French from Europe, the Caribbean, Africa and North America, including texts about soccer in France and Africa, hockey in Canada, the Tour de France, Senegalese wrestling and the Olympic games. Prof Curto illustrates how sports competitions are often used as allegories for cultural contact and conflict, for the aesthetics of writing and literature, and for the construction of national identities in opposition to other social formations, in order to show the fundamental role of sports in post-colonial body politics, nation-building, and the creation of collective imaginaries. This topic relates closely to a popular lecture course that she teaches, "Global Sports and National Cultures,"

which counts towards the General Education requirement in "International and Global Issues."

**DAILEY, MICHAEL E**, Associate Professor, Biology, 21 years of service, fall semester  
*Title:* Developing new imaging skills to study the behaviors of glial cells during brain development in living mice

Prof Dailey will utilize the PDA to develop new imaging skills to study the behaviors of cells during brain development in living mice. The new knowledge will contribute to a better understanding of the mechanisms of normal and abnormal brain development, especially relating to stroke, alcohol abuse during pregnancy, and environmental factors (including pesticides) that are risk factors for autism spectrum disorders, topics that are directly relevant to citizens of the State of Iowa. The PDA will enable Prof Dailey to expand underutilized capabilities of a multiphoton laser microscope located within the Biology Department's Carver Center for Imaging. The new skills will enable Dr. Dailey to train post-docs and graduate students in the methodology, collect data to complete an existing research project, obtain new pilot data supporting new extramural grant applications, and expand research capabilities to facilitate collaborative research projects with other scientists on and off campus. Prof Dailey will incorporate the new knowledge in teaching undergraduate students in the newly established Neuroscience major.

**DALRYMPLE, KAJSA E**, Associate Professor, Journalism & Mass Communication, 6 years of service, fall semester

*Title:* Identifying Influential Iowans: Exploring the role of opinion leadership on decision-making among Iowa farmers

The increased threat of severe storm events and flooding in Iowa has caused public officials, academics and citizens to question how to avoid such future disasters. However, in search for answers, the previously complementary relationship between farming and environmentalism has shifted, and heated debates in media outlets have pitted Iowa farmers against legislators, educators, and even their own neighbors. This has created an ideal situation for exploring the impact of communication on farmers' perceptions of sustainability and the impact of land management practices on our water quality. In a series of forums with land managers, this project will collect data about the ways that farmers choose to adopt or reject sustainable agriculture practices. During these focus groups, participants will converse with one another and interact with a game-like land management simulation program that shows the impact of management decisions across climate scenarios. Results will show the impact of farming decisions on water resources in the Corn Belt as well as create a number of opportunities for students to interact with community partners and gain important research experience in the field.

**DOWLING, DAVID O**, Associate Professor, Journalism & Mass Communication, 5 years of service, fall semester

*Title:* Immersed: Narrative Journalism in the Digital Age

Nonfictional and journalistic narrative in the digital age has never seen a larger and more versatile canvas than during the current digital revolution. Prof Dowling will examine the online world's recent embrace of immersive, textured digital media products foregrounding descriptive narrative that emphasizes intimacy and authorial subjectivity. Contrary to allegations that increasing internet use has deprived the culture of narrative, new digital journalism has sparked a renaissance in deep reading and viewing associated with the literary mind. Dowling argues that improved digital design immerses rather than distracts readers, unleashing the power of narrative as perhaps the most crucial link to our humanity. Students and scholars specializing in digital media will benefit from learning that the online ecosystem is not awash with indistinguishable forms. The multimedia feature, on-demand documentary television series, branded digital documentaries, interactive online documentaries, and podcasting have risen to prominence in longform journalism's narrative renaissance. Deep reading is now thriving more than ever online.

**\*ESPINOSA, MARIOLA**, Associate Professor, History, 4 years of service, fall semester

*Title:* Fighting Fever in the Caribbean: Medicine and Empire, 1650-1902

Over the past few decades, historians of the Caribbean have reached the consensus that, from the demographic collapse of native populations to the successes of some of the world's earliest anti-colonial revolutions, pivotal moments turned on the presence and power of microorganisms. Professor Espinosa's work looks at how medicine—the human generation, diffusion, acceptance, and application of medical knowledge about the distinctive disease environment of the region—was as important to the course of historical events in the Caribbean, as the diseases themselves. This will result in a book of Medical

Humanities that explores how both yellow fever and the ways in which people understood the disease combined to affect the struggle for empire in the region, the product of which yielded the multilingual, multicultural, multinational Caribbean of today. It will also generate new material for integrating multidisciplinary into undergraduate courses in History and Global Health Studies.

**FORBES, ANDREW A**, Associate Professor, Biology, 7 years of service, fall semester  
*Title: Discovering new diversity in our own backyards*

Professor Forbes will use his PDA to collect critically important new biodiversity data and develop new resources for teaching. Specifically, he will: 1) collect and identify the many hundreds of species that make up the staggeringly diverse, yet largely unknown, communities of parasitic wasps associated with North American oak galls and 2) use this research project to develop new interactive teaching modules for his large lecture ecology course. Parasitic wasps are the most diverse of all animals, and oak galls represent a promising system to understand parasitic wasp diversity, evolution, and economic importance. The resulting work will lead to new funding opportunities for Forbes' research lab, including a planned submission to the National Science Foundation. This work will benefit undergraduate students in Biology and Environmental Sciences via the improvement of the core Ecology course. Parasitic wasps are important potential biological control organisms for almost all agricultural pests, but they are also among the least well studied of animals, so this work promises to provide new insight into potential avenues for pest control.

**FORBES, TORI M**, Associate Professor, Chemistry, 7 years of service, spring semester

*Title: Exploring the basic chemistry of neptunium in aqueous solutions*  
Neptunium is a long-lived radioactive element that forms in kilogram quantities during the burn-up of uranium dioxide fuels for use in commercial nuclear reactors. As neptunium is a man-made element, even its basic chemical properties in water are still poorly understood, leading to difficulties regarding radiochemical separations, corrosion and safe storage of spent nuclear fuel, and modelling environmental transport properties. Professor Forbes is currently investigating the basic chemistry of neptunium, specifically focusing on the fundamental chemistry of neptunium encapsulated by larger organic molecules. For this PDA, Professor Forbes will work collaboratively with Argonne National Laboratory to investigate the basic chemistry of neptunium, publish several manuscripts in peer reviewed journals, present findings at national and international meetings, and submit competitive renewals for continued grant funding. This award will benefit students at the University of Iowa through a strengthened relationship with Argonne National Laboratory. More generally, the award will benefit society through advancements in reprocessing of nuclear materials.

**GHOSH, JOYEE**, Associate Professor, Statistics & Actuarial Science, 7 years of service, fall semester  
*Title: Robust Bayesian Variable Selection*

Professor Ghosh will develop new methods and algorithms for prediction and variable selection. It is common to have datasets with many predictor variables that help in predicting a response variable. Usually a small fraction of the predictor variables are useful for prediction. The problem of identifying them is called variable selection. Many applications in the biomedical sciences produce big datasets, leading to computational challenges in variable selection. Professor Ghosh will develop Bayesian variable selection methods that provide more stable prediction in the presence of unusual observations for such datasets, which could benefit society. This research involves a technique called Bayesian model averaging, which improves prediction, by combining predictions from several models. A graduate student will work on this project under the supervision of Professor Ghosh. This PDA is expected to result in one or more papers and generate new topics for Professor Ghosh's graduate courses. It will also help in completing the goals of an ongoing grant from the National Science Foundation in a timely manner, and lead to ideas for grant proposals in the future.

**GIDAL, ERIC**, Professor, English, 21 years of service, fall semester

*Title: Biblio-stratigraphy: Experiments in Ecocritical Book Studies*

Professor Gidal will use his PDA to research and compose two articles related to a larger project of "biblio-stratigraphy." This work combines material book studies, digital geospatial analysis, and environmental history. He will complete a comparative study of the Encyclopédie of Denis Diderot and Jean le Rond d'Alembert (published 1751-1772) and Jean-Jacques Rousseau's epistolary novel *Julie, ou La Nouvelle Héloïse* (1761). He will also produce a study of Scottish musical miscellanies from the eighteenth and nineteenth centuries. In both cases, he will demonstrate new methods for understanding print technologies

and communication networks in relation to geographical patterns of resource extraction, commercial infrastructure, and energy consumption. Results from this work will be published in two separate articles, will inform Professor Gidal's undergraduate and graduate instruction, and will contribute to the development of environmental, textual, and digital studies at the University of Iowa.

**GILLAN, EDWARD G**, Associate Professor, Chemistry, 20 years of service, spring semester  
*Title:* Thermochemical growth of multi-component materials supported on templated porous carbons for heterogeneous catalysis and environmentally important radiochemical applications

This PDA will allow Professor Gillan focused time to write papers on existing research projects and formulate and implement new research directions. Specifically, during this PDA period he will develop synthetic methods for composite catalysts and assess of their activity in energy related applications, establish new computational collaborations that link predictions with experiment, and validate the utility of porous templated carbon materials in radiochemical ion uptake. The development of new research project directions is key to successful efforts to obtain new federal research funding. This PDA period also enable Professor Gillan to make several presentations at peer research institutions to increase his external research visibility. Both advanced undergraduate and graduate chemistry courses at the University of Iowa taught by Professor Gillan will benefit from insights he and his research team gain about new catalyst synthetic designs, radiochemical interactions, and theory/experiment connections. New catalyst discoveries may enable clean energy applications that benefits citizens of Iowa and the nation.

**GORDON, COLIN**, Professor, History, 23 years of service, spring semester

*Title:* Home Inequity: Race, Wealth, and Housing in the American City

Professor Gordon will complete research for a book on racial wealth inequality and housing in the United States. The PDA will enable archival research in property records in three American cities, supplementing pilot research (completed in 2017) already conducted in St. Louis. The goal is to trace the trajectory of black and white homeownership, and of black and white home values, over time in order to understand the roots—and the ongoing consequences—of racial disparities in housing. This will help us understand both the stark racial wealth gap, and other inequalities (especially in education) that flow from home ownership. This research will inform Professor Gordon's regular course offerings, which include a first-year "big ideas" about economic security and economic opportunity in the United States, and an upper division course on the history of inequality in the United States.

**GRAHAM, LAURA R**, Professor, Anthropology, 27 years of service, fall semester

*Title:* Media Revolution: Transformations of Indigenous Media among the central Brazilian A'uwẽ-Xavante  
Professor Graham will draft a book that tells the story of the massive transformation associated with the introduction of audio-visual media technologies to the central Brazilian A'uwẽ-Xavante over the last 30 years. The book considers tensions between inevitable changes that accompany new technologies and Xavante ideas about and use of media to promote cultural continuity and rights. Chapters demonstrate that Xavante deploy new media as part of efforts to communicate about their culture and themselves to non-Indigenous publics, and among dispersed Xavante communities, while simultaneously pointing to challenges media makers face as they attempt to keep up with the rapid pace of technological change. This will be the first book-length monograph to consider the use of and effects of new media technologies on a Lowland South American Indigenous people and the first to examine media's impacts on the lives of individual media makers. The project will enrich all courses that Professor Graham teaches and solidify her place as a leading scholar of Indigenous media and lowland peoples of South America.

**HAND, BRIAN**, Professor, Teaching and Learning, 12 years of service, spring semester

*Title:* Building a theoretical framework for science literacy

Professor Hand's research work is focused on science literacy in Iowa, nationally and internationally. During this leave he will work with international colleagues to build a theoretical framework across different disciplinary perspectives. He will work with scholars in Australasia and Europe, from different fields of science education, language education, cognitive psychology and socio-cultural studies, to build a theoretical framework that will help researchers and educators improve student learning. Professor Hand will use this framework not only in his research both here in Iowa and internationally, but also to improve science teacher preparation here in Iowa. Given his extensive work with practicing teachers in Iowa, he will use this work to further help science teachers within the state.

**HAND, GREGORY S**, Associate Professor, Music, 9 years of service, fall semester

*Title:* Southern German historic organs and their impact on modern Organ Pedagogy  
Prof Hand will travel to Germany to implement a three-pronged research plan to further develop his scholarly activities. He will inspect, document, and give concerts on five historic organs in Southern Germany that demonstrate a surprising synthesis of Baroque and Romantic elements. These elements, long thought incompatible by modern scholars, prove a historic relationship between these two eras, and represent a paradigm shift in our understanding of the vast organ repertoire composed by German organists. Concurrently, Prof Hand will commence intense private study of historic improvisation with a well-known pedagogue. Finally, he will embark on a concert tour of historic instruments in Germany. This plan will elevate Prof Hand's stature in his field, greatly increase the dissemination of his scholarly work, expand the teaching possibilities in the Organ Department, and grow the awareness of musical performance at the University and in the State of Iowa.

**HASAN, ALI M**, Associate Professor, Philosophy, 9 years of service, spring semester

*Title:* Rationality, Intellectual Virtue, and the Examined Life

Professor Hasan will utilize the PDA to produce two related, substantive papers for publication. The first builds on earlier work to develop a general theory of rationality. The second explains the basic structure of intellectual virtues (like humility, open-mindedness, intellectual courage, etc.), their relation to other notions like rational belief and intellectual responsibility, and their importance and value in education and everyday life. Professor Hasan will submit both manuscripts to highly ranked journals in philosophy. These papers will figure as core parts of the ultimate goal, an ambitious book project on rationality and intellectual virtue, to be completed during the following year. Professor Hasan's project will contribute to the content of courses that he regularly teaches at the University, including courses in epistemology and philosophy of religion, with substantial sections devoted to understanding, knowledge, rationality, and intellectual inquiry; and it will help him clarify and better achieve the objectives for these courses, which include the inculcation and support of critical thinking skills and intellectual virtues.

**HEDGCOCK, WILLIAM M**, Associate Professor, Marketing, 9 years of service, Spring semester

*Title:* Understanding how emotion affects financial decision making in seniors

Prior work has shown that aging can impair cognitive functioning and that these impairments (e.g., diminished memory) affect financial decision making. But little is known about how age-related emotional changes affect decision making. Professor Hedgcock will complete work that sheds light on this topic. He will develop the Experiential Investment Task (EIT) – a task that evaluates risky decision making, and will run studies and write a paper that describes how age-related changes to emotional processing affect decision making. Preliminary research in our lab has found most participants act in economically irrational ways when performing the EIT. Further, we find this behavior is correlated with emotional reactions during the task. Hedgcock will develop training and curriculum at the intersection of decision making and cognitive neuroscience to graduate and undergraduate students during this assignment. Baby boomers now control more than 50% of U.S. household investable assets, valued at more than \$13 trillion (SEC 2007). Undiagnosed cognitive changes in this population represent an increasingly important problem both for the state of Iowa and for the country as a whole.

**HITLIN, STEVEN**, Professor, Sociology, 12 years of service, half-time for one year

*Title:* Moral Boundaries Around the World

This PDA will be used to transition from a currently funded (MINERVA, from the U.S. Military) grant studying moral values in four nations around the world toward a better understanding of the development and consequences of such beliefs. At the end of AY17-18, we will have completed survey data from four countries (the U.S., South Korea, Turkey and France) as well as fMRI neurology results from two countries (the U.S. and Turkey). This Award would motivate the analysis and dissemination (journal articles, perhaps a book) of these findings, and would allow for the PI to consider another external grant, depending on how well these results turn out. There is a lot of talk of people using moral language to discriminate against others, but we know little about the content of what people in different societies and with different economic backgrounds consider 'moral'. The current and future research attempts to investigate this cross-culturally.

**HORNBUCKLE, KERI C**, Professor, Civil-Environmental Engineer, 19 years of service, fall semester

*Title:* Iowa Superfund Research Program: competitive renewal application to the National Institute for Environmental Health Sciences

Prof Hornbuckle will lead the submission of the funding renewal application of the Iowa Superfund Research Program (ISRP), an internationally-recognized research center at the University of Iowa that focuses on the sources, human exposure, toxicity and remediation of polychlorinated biphenyls (PCBs). It is funded by the National Institute for Environmental Health Sciences in the National Institutes of Health (NIEHS/NIH). PCBs are environmental contaminants determined to be human carcinogens, endocrine disruptors, and neurotoxins. They are frequently measured in the environment and found in building materials, including in Iowa schools. The ISRP has provided scientifically sound data to support decisions to reduce the harm of these contaminants since 2006. This PDA will support her efforts to coordinate, write and submit the application to NIEHS for the competitive renewal during the fall of 2018.

**HUCKLEBERRY, ALAN**, Professor, Music, 13 years of service, fall semester

*Title:* The People United - Using Music to Create Unity in a Fractured Society

Prof. Huckleberry will create a DVD of "The People United Will Never Be Defeated", an hour long piano piece by Frederic Rzewski. This work was conceived as a commentary on the Chilean people's plight after the fascist coup in 1974. However its theme is now used across the globe as an anthem against oppression. The unique impact of this project is that he will accompany the music with video footage of current political events. These images are meant to be thought-provoking, but also help the audience understand the complex compositional structure in real time. During his PDA, he will prepare the music, audio record it, and tour across the USA, performing 15-20 concerts. He will invite musicians from all genres to join him on stage for an improvisation segment of the piece. The footage of these performances will be edited into the final movie at the appropriate moments. Genres will include jazz, country, rap, blues, etc. The final DVD is intended to offer an example of unity through music, regardless of political conviction, sexual orientation, color of skin, or gender. It will be a positive example of how we as a people, can come together, and find common ground in the arts.

**JACOB, MATHEWS**, Associate Professor, Electrical-Computer Engineer, 6 years of service, fall semester  
*Title:* Machine Learning, Theory, Algorithms, and Applications to Neuroscience

The purpose of this PDA is to plan the directions and to lay the foundations for the next five years of Prof. Jacobs research. He plans to expand his research into novel machine learning algorithms and its applications to neuroscience. His current research is on MR image reconstruction using learned methods, with applications to cardiac and brain MRI. The award will provide him with protected time to dive deeper into deep learning as well as algorithmic tools to extend the framework to learning applications where extensive amounts of data is missing or corrupted. The algorithmic tools are expected to enable novel frameworks for cardiac MRI and to analysis of multimodal neuroscience data. He plans to closely collaborate with Institute of Neuroscience (INI) and Dept. Cardiology faculty on these applications. The proposed project is expected to result in grant proposals to NSF and NIH. The deeper understanding gained from the project will also enable Prof. Jacob to greatly enhance the Pattern Recognition & Machine learning course that he currently teaching, whose enrollment is steadily growing.

**KANG, JIYEON**, Associate Professor, CLAS-Communication Studies, 7 years of service, spring semester  
*Title:* New Global Civilities: The Mobile Undergraduate in the U.S., China, and South Korea

Professor Kang will conduct research for her book project, New Global Civilities: The Mobile Undergraduate in the U.S., China, and South Korea, a comparative analysis of the encounter between domestic and international students. Undergraduate student mobility among these three countries accounts for 40% of the 4.5 million students who study in foreign countries. By analyzing national media coverage and online communities of international students, she will investigate the changing global university and the unevenness of globalization. She has already completed the analysis of media coverage, and has begun preliminary analysis of online communities in each setting. During the PDA, she will complete her research, investigating significant differences between East-West and intra-Asian student mobility. New Global Civilities will interest intellectual constituencies across the humanities and social sciences, including a large readership of university professionals beyond the professoriate. Professor Kang plans New Global Civilities as an accessible manuscript well suited for use both in undergraduate classrooms and by practitioners.

**KAYLE, JENNIFER**, Associate Professor, Dance, 12 years of service, spring semester

*Title:* Doing Things Together: Ensemble Dance Improvisation as Collective Action

In 'Doing Things Together,' Professor Kayle examines the intersection of Ensemble Improvisation and the Philosophy of Collective Action. Collective Action theories discuss what makes an act collective, and how

these acts are different than individual, or aggregates of individual actions. Kayle's research compares/applies these theories to Compositional Improvisation, a form that trains dancers to compose together and perform spontaneously through "ensemble thinking," a skill that bridges the desires of the individual and the group. Research will result in new dance improvisation pedagogy, professional presentations of improvised performance, and a scholarly article in collaboration with Professor Hasan (Philosophy). Research that specifically relates theories of collective action to ensemble improvisation does not exist in either the Philosophy or Dance Theory literature, and stands to make a significant contribution to both. New pedagogy, one that identifies and translates practical skills common to both group improvisation and collective action, has the potential to inform and support our capacity to more successfully do things together, both within and beyond artistic contexts.

**LALUMIERE, RYAN T**, Associate Professor, Psychological and Brain Sciences, 7 years of service, spring semester

*Title:* Neurophysiological correlates for the inhibition of cocaine seeking

Prof LaLumiere's project will be to develop methods for using behavioral physiology to investigate the neural mechanisms underlying the inhibition of cocaine seeking. Recording neuronal activity during an animal's behavior is an increasingly important technique in behavioral neuroscience. Electrode arrays will be implanted in rats that have been trained to press a lever to receive cocaine. These arrays will be placed in two brain regions, allowing Prof LaLumiere to examine activity in both regions and how the activity in one region relates to activity in the other during cocaine seeking. The results of this work are expected to contribute both to future external funding proposals, benefiting the university, and to future publications. Additionally, graduate and undergraduate students will receive valuable training as part of this project. Moreover, the knowledge gained by Prof LaLumiere will contribute to his own teaching repertoire. Finally, this work will focus on cocaine-seeking behavior, which models the problem of relapse in drug addiction. Thus, further work on this topic may contribute to the successful treatment of drug addiction in the future.

**LI, NING**, Associate Professor, Management & Organizations, 5 years of service, half time for one year

*Title:* Using Big Data to Explore Team Collaboration Patterns and Team Performance

The proposed PDA promotes the integration of data science (e.g., big data) with traditional management and behavioral research. Rapid developments in technology have deeply impacted employees' behaviors. One prominent example is the recent rise of online collaboration tools (i.e., application software designed to help people collaborate with others to achieve collective goals), which have significantly changed the way people interact with others. Using the big data provided by an online collaboration software company (Teambition), the proposed PDA takes a novel approach to examining how the use of technology – online team collaboration tools – affects the way employees collaborate with one other to achieve collective goals. Dr. Li will work with a partner company, Teambition, a Shanghai-based startup venture company offering an online team collaboration platform to enterprises in China to recruit about 100 companies to participate in the study. The results will inform the management community and provide rich teaching examples and cases for graduate and undergraduate students who are interested in big data and HR analytics.

**LONGFELLOW, BRENDA**, Associate Professor, Art and Art History, 12 years of service, fall semester

*Title:* Women in Public in Ancient Pompeii

Professor Longfellow will undertake field research at the ancient Roman city of Pompeii in Italy, where she will analyze the architectural and decorative remains of tombs that were either built by women or given to women as posthumous civic honors by the town council. She will then write up her results, which will be published as a chapter in her book titled Women in Public in Ancient Pompeii. Professor Longfellow teaches courses on ancient Roman art history, including a course specifically on Pompeii. Her research during the award period will directly inform undergraduate and graduate discussions in all of her classes about female patrons in the Roman world, modern assumptions about ancient gender roles, and Roman funerary architecture. Because this project analyzes the economic and social implications of both female tomb builders and females honored for their public activities by the city of Pompeii, Professor Longfellow's research benefits society by furthering our understanding of the historical nature of female involvement in the larger community and outside of the domestic sphere.

**LU, JIA**, Professor, Mechanical and Industrial Engineering, 16 years of service, fall semester

*Title:* Development of an Inflation Test System for Characterizing Soft Tissue Rupture

Professor Lu will design and build an experimental system for studying tissue rupture. Over the past decade



Professor Lu has been working on the mechanics of aneurysm. While significant efforts have been devoted to the genesis and growth of aneurysms, little is done in understanding how aneurysms rupture. The goal of the project is to develop an in vitro resting system that can accurately delineate the mechanical condition at the rupture site, and trace the fracture propagation through the tissue. These pieces of information will shed light on understanding the mechanism of tissue rupture.

**MAIERHOFER, WALTRAUD**, Professor, German, 27 years of service, fall semester

*Title:* Adoption, IVF and Surrogacy in Recent German Fiction and Film

Future families and the impact of medical assistance to reproduction are hotly debated. Professor Maierhofer will conduct research for a book analyzing nontraditional family structures and reproductive choices in recent German fiction and film. She will draft two book chapters of a planned total of four plus introduction and conclusion. The monograph will analyze fictional and autobiographical writing and films from Germany, Austria, and Switzerland since the early 2000s. She will strive for a balance between fictional and cultural analysis. The particular topics (chapters) to be investigated during the PDA are: 1) Adoption, including international adoption, 2) In-vitro fertilization and surrogacy. The book will be aimed at a scholarly audience as well as the educated reader. The research will inform a new undergraduate course for the German major (within an open-topic upper-level seminar). Prof. Maierhofer plans to develop a new core course on reproduction and family structures in the 21st century around the world. It is important for educated citizens to understand the impact of changing family structures and different laws.

**MOBILY, KENNETH E**, Professor, Health and Human Physiology, 36 years of service, fall semester

*Title:* The enigma of Joseph Lee

The purpose of this PDA is to investigate one of the founders of the Playground Association of America (1906), Joseph Lee, who subsequently went on to serve 27 years as president of the association. Although Lee was motivated by a genuine concern for the welfare of immigrant children, he was also active in limiting immigration as a member of the Immigration Restriction League (1894). One purpose of this research is to discover how and if Lee came to terms with this apparent contradiction. Professor Mobily expects to publish research on this topic after examining primary sources available at the University of Minnesota Social Welfare History Archives. Mobily currently teaches the course "Introduction to Disability Studies" in which the topic of eugenics is covered. Further, America is currently in the midst of a crisis surrounding the issue of immigration. Information obtained from this project may inform today's immigration controversy.

**OATES, THOMAS P**, Associate Professor, American Studies, 5 years of service, fall semester

*Title:* Selling Streetball: Playground Culture, Commerce, and Racialized Space

This PDA will support the completion of research for a book project examining the growing prominence of a distinctive subgenre of basketball often called "streetball." "Streetball" is characterized by a fast-paced, spectacular style, highlighted by verbal and physical duels between contestants, and is strongly associated with the black urban ghetto. While scholars have examined how the musical genre of hip-hop and cinematic narratives from *Boyz in the Hood* (1991) to *Straight Outta Compton* (2016) have shaped dominant ideas about urban black space, they have not directed the same attention to the role of sport. This project addresses that gap by tracing the emergence and commercialization of streetball from the 1960s through the present, focusing on how media narratives confirm, contest, and complicate dominant understandings of the black ghetto. The award will support the completion of a book that will deepen understandings of how sport media influences culture and politics, especially in relation to race and urban life. Professor Oates will incorporate the findings into his undergraduate and graduate courses in sport and media.

**PANT, GAUTAM**, Associate Professor, Management Sciences, 6 years of service, fall semester

*Title:* Using Web Footprints to Explain and Predict Human Capital Movement

Professor Pant proposes to study the web presence of firms and their employees with the aim of uncovering time-sensitive signals that may predict movement of human capital between firms, industries, and states. The study aims to utilize the increasingly large trace of public information that firms and employees leave on the web that may provide insights about the interactions between firms and employees. A study of such interactions and the associated predictions have the possibility of informing not just the employees and decision makers at firms, but also market analysts and government policy makers. The availability of large scale web data related to employees and firms presents both opportunities and challenges that are unprecedented as compared to surveys and other manual data collection methods of the past. As a result, Professor Pant seeks to develop frameworks and methods that will allow for not just accurate predictions

in this context, but also potential causal explanations that can inform decisions at various levels. Professor Pant expects this ambitious research agenda to accrue benefits in terms of teaching, research, and practice in the state of Iowa.

**PHILLIPS, BRYAN**, Associate Professor, Biology, 7 years of service, fall semester

*Title:* Using CRISPR to genetically tag *C. elegans* proteins

Professor Phillips will utilize a PDA to evaluate and apply new genome editing techniques to his research group. Professor Phillips studies developmental biology, specifically how cell divisions affect cell fate, using the model organism *Caenorhabditis elegans*. These studies include examining the inheritance of certain cell fate proteins, visualized by fluorescent tags. Newly discovered genome editing techniques (CRISPR) will be brought into the Phillips research group to generate new fluorescently-tagged proteins that are encoded by the endogenous genomic locus. This technology and the tools it generates will enable new data acquisition for publications and grant proposals. The award will benefit Phillips' teaching by enabling genome editing projects by undergraduate and graduate student researchers in the Phillips lab. Since this technology is rapidly becoming the norm for transgenic experiments, it will benefit the Iowa community by facilitating the continuation of Phillips' research group, funding from which provides employment opportunities to existing Iowa scientists and scientists-in-training.

**PLATTE, NATHAN R**, Associate Professor, Music, 6 years of service, fall semester

*Title:* The Sounds of Music in the Films of Robert Wise

Professor Platte will visit archives in California and New York to study the films of Robert Wise, a director and former sound editor whose films rely more on sound than sight to achieve a distinctive cinematic style. This study will explore the diverse roles sound and music play across Wise's eclectic output, which embraces science fiction, musicals, horror, and historic epics. Wise's films regularly illuminate social problems specific to postwar America and use the soundtrack to undermine expectations and prompt fresh reflection on issues including racial prejudice, nuclear armament, and the death penalty. Prof. Platte's archival research will result in a book-length study of music and musical sound in Robert Wise's films, thereby extending his work on filmmakers who have revolutionized film through collaborations with musicians and sound technicians. This research will be shared in graduate seminars on film music and American music that Prof. Platte regularly teaches. Undergraduate students will learn of the civic and musical impulses directing Wise's soundtracks in an annually offered "Introduction to Film Music" course.

**RADLEY, JASON J**, Associate Professor, Psychological and Brain Sciences, 6 years of service, spring semester

*Title:* Development of a transgenic rat to examine the anatomy and function of stress-related pathways in the brain

While great strides have been made in understanding the basic science of mental disorders over the past 25 years by the utilization of transgenic techniques in laboratory animals, a limiting factor has been the heavy reliance on the mouse as a model species. Mouse genetics offer an expedient means of manipulating the genome and analyzing nervous system disorders; however, the rat has a broader behavioral repertoire that is believed to translate better than the mouse for modeling human psychiatric illnesses. Researchers are now beginning to develop transgenic rat models that will provide greater resolution in analyzing brain and circuit function underlying complex behaviors. Prof Radley's laboratory seeks to elucidate the pathways in the brain that are dysregulated by stress using more complex behavioral approaches in the rat that will help to inform the basic processes underlying stress-related mental disorders such as depression and post-traumatic stress disorder. Prof Radley will integrate rat transgenic models that have been recently made available to obtain greater insight into the cellular mechanisms that lead to behavioral perturbations following stress exposure.

**RAHMAN, SHARIF**, Professor, Mechanical and Industrial Engineering, 22 years of service, spring semester

*Title:* Uncertainty Quantification in Isogeometric Analysis

Prof Rahman will conduct fundamental research on isogeometric modeling and simulation of complex systems subject to uncertainty; in other words, new computational methods will be developed to quantify the effect of uncertainty on system response. By addressing uncertainty head-on, effective measures to manage and mitigate uncertainty can be devised. Potential engineering applications include microstructure-property relationship in advanced materials, fatigue and fracture of engineering structures, and design of

nanoelectromechanical systems. Beyond engineering, the results from this research will benefit the U.S. and Iowa economy and society through application in areas where uncertainty quantification plays a vital role, such as energy sciences—nuclear energy, carbon sequestration; statistical physics—medicine, quantum mechanics; geosciences—seismology, reservoir modeling; and bioinformatics—drug delivery, agriculture. Expected results and outcomes from this project include several peer-reviewed journal articles, grants from U.S. National Science Foundation and industry, and new software tools for upgrading Professor Rahman's undergraduate and graduate courses.

**RYNES-WELLER, SARA L**, Professor, Management & Organizations, 27 years of service, half-time for one year

*Title:* Narrowing the Academic-Practice Gap in Management

Observers have long noted a considerable gap between management research findings and management practices. Professor Rynes has been studying this gap for nearly twenty years. During the proposed PDA, she will conduct three studies related to this gap, all designed with the objectives of reducing the gap and improving knowledge transfer between academics and managers, as well as teachers and students. Study 1 will review empirical research examining why people don't believe academic research findings as well as the effectiveness of alternative strategies for presenting research findings to lay audiences. Study 2 will be a review of empirical studies in which management scholars and managers pursued collaborative research ventures that got published in top-tier journals. Study 3 will examine how professionals translate academic findings to managerial audiences. Professor Rynes will publish her work at conferences and in widely read journals and incorporate her findings into her doctoral course on Organization Theory and her MBA courses on Organizational Change.

**SANDER, EDWARD**, Associate Professor, Biomedical Engineering, 6 years of service, fall semester

*Title:* Gaining Expertise in Synthetic Biology

Synthetic Biology (SB) is a rapidly developing field that lies at the intersection of biology and engineering. The underlying premise of SB is that living systems can be engineered to produce useful end products, tools, or machines for a range industrial and medical applications. This nascent field has tremendous commercial potential, and it recently has spawned a number of major funding initiatives. Prof Sander seeks a PDA so that he can acquire new expertise in SB techniques in order to expand his research and teaching portfolio. Dr. Sander will receive training in SB to: (1) develop preliminary data for a competitive R01 proposal, (2) produce new material for a summer course on SB, and (3) help establish a strong SB presence on campus. Establishing SB expertise at UI will provide more opportunities for research funding, a new career path for undergraduate/graduate students, and the potential for new commercial enterprises that will benefit the State of Iowa.

**SHEN, HELEN**, Professor, Asian & Slavic Languages and Literatures, 13 years of service, fall semester

*Title:* Two Academic Projects for Chinese as a Second Language Acquisition

Professor Shen plans to complete two projects. The first project is a comprehensive study on reading fluency in Chinese as a Second Language (Chinese L2). The results of this study will directly: 1) contribute to the construction of a Chinese reading fluency scale crucially needed in the field for identifying students' levels of reading comprehension so that appropriate intervention can be provided in the classroom; 2) yield theoretical perspectives for Chinese L2 educators in understanding the oral and silent reading processes and their relation to reading comprehension; 3) provide a solid theoretical background to support a major three-year research project requiring external funding that Professor Shen plans to pursue after the PDA period. In addition, she will also spend some time completing the second project -- the second edition of the book Teaching Chinese as a Second Language: Vocabulary Acquisition and Instruction. This is the first book in the field that addresses adult Chinese L2 vocabulary acquisition and instruction from the perspectives of both theory and practice. Its first edition was published by Peking University Press in 2011.

**SOLT, FREDERICK**, Associate Professor, Political Science, 5 years of service, fall semester

*Title:* Responsiveness and Policy Feedback in Dynamic Comparative Perspective

When do governments respond to changing public opinion with new policies? When do policies generate growing public support—and when do they instead trigger a backlash in public opinion? These questions are at the heart of democracy, and answering them depends on evidence about trends in public opinion and policy over time, on a variety of issues, across a broad range of circumstances. Professor Solt's study will examine public opinion and policy across decades and dozens of countries on four often-contentious

issues: gay marriage, abortion, immigration restrictions, and government spending. Its conclusions on government responsiveness and policy feedback will be presented in a book. The results will also allow Solt to show how public opinion and policymaking differ across countries in his classes on comparative politics, and allow citizens of Iowa, the U.S., and beyond to understand the circumstances in which their governments deliver the policies that they prefer.

**STEINITZ, MAYA**, Professor, Law, 6 years of service, spring semester

*Title:* Law and the Self: An Imaginary Exchange of Letters between H.L.A. Hart and G.H. Mead  
Professor Steinitz will spend the semester making significant progress on a book manuscript in legal philosophy. The book is tentatively titled 'Law and the Self: An Imaginary Exchange of Letters between H.L.A. Hart and G.H. Mead.' It will take the form of a fictional debate between two titans of 20th century philosophy—the social philosopher George Herbert Mead and the legal philosopher Herbert Hart. The project is ambitious in both substance and style. Substantively, Prof. Steinitz intends it to be the first new comprehensive proposal for a concept of law since the 1980s, when Joseph Raz and Ronald Dworkin offered, respectively, their positivist and natural law theories. The approach is interdisciplinary, drawing on law, philosophy, and social-psychology. In the latter regard it will in particular make use of concepts from the social-psychological field of symbolic interactionism—which has been significantly advanced at the University of Iowa. Stylistically, the book will present a full theory of law through a work of literary fiction in order to make it more readable for a larger audience and to capture more fully the nature of the dialogue between legal and social philosophy.

**STONE, ERIC**, Associate Professor, Theatre Arts, 9 years of service, fall semester

*Title:* Where Practice Meets Pedagogy: Prague and T.V. Production

Professor Stone's research has international and West Coast components. First, working with prominent theatre designers as a lead collaborator, he will immerse into the execution of the USA National Exhibit for Theatre Design for the Prague Quadrennial in 2019 (the preeminent international theatre design conference with 70+ countries participating). This project has three phases: design of the exhibit (Dec. 2017 – June 2018); execution of the exhibit (Sept. – Nov. 2018); and its installation seven months later in Prague at the June 2019 conference. The networking integral to this enormous undertaking will foster future creative possibilities for both Stone and UI at large. Second, in an extended residence in Los Angeles (Dec. 2018), Professor Stone will shadow several production designers for television/awards shows. The skills that theatre designers use to create sets for live theater cross mediums and transfer easily to international work. Ultimately, Professor Stone's research will have pedagogical outcomes in his UI Scenic Design 1 – 3, Graphic Design, and Graduate Design Seminar courses, better preparing students for work in Los Angeles and internationally.

**UDAYKUMAR, H S**, Professor, Mechanical and Industrial Engineering, 18 years of service, spring semester

The applicant requests an opportunity for a PDA in the Spring 2019 semester to perform concentrated work on the writing of two books. These books will be on the subjects of Design of Energy Systems (a senior undergraduate textbook) and Interfacial Dynamics (intended for graduate students and researchers) respectively. The applicant has been working on both of these books for several years now as part of the regular academic schedule. Substantial parts of the books have already been assembled. The focused time allowed in the PDA semester will enable the applicant to complete the writing of the books. Both books have already been discussed with potential publishers and can be finished during the Spring 2019 semester. The publication of these books will support the teaching and research missions at the University of Iowa. Undergraduate and graduate students will benefit. In addition, the larger community of engineers in the United States and the world are expected to benefit from the topics covered in the proposed books. Publication of the books will raise the profile of the university and state of Iowa.

**\*VASI, ION B**, Associate Professor, Sociology, 4 years of service, spring semester

*Title:* Beyond Petroleum? The Emergence of Alternative Fuel Markets in the United States, 1995-2015.  
Professor Vasi will conduct research on the emergence of markets for alternative fuels. Understanding market emergence is a key issue for scholars because this process has far-reaching effects that can reverberate across industries, markets, and organizations. This project will simultaneously analyze the role of governments, producers, and consumers for the emergence of different market categories. Using an original panel dataset, the study will compare the emergence and growth of "multiple-category" markets for

five different alternative fuels for ground transportation in the United States between 1995 and 2015: electric, biodiesel, ethanol, liquefied petroleum gas, and compressed natural gas. The analyses will examine how the growth of various types of markets for alternative fuels is influenced by factors such as legislation, environmental movement organizations, and existing industries. The project will result in one article in a peer reviewed journal and will enrich courses Vasi currently teaches. The broader societal impact of this work is that it will help policymakers in designing more effective energy policy.

**VIGMOSTAD, SARAH C**, Associate Professor, Biomedical Engineering, 9 years of service, spring semester

*Title:* Development of Non-invasive Bladder Cancer Diagnostic  
Over 2.7 million people worldwide live with bladder cancer, and its high risk of recurrence requires patients to undergo regular, invasive surveillance procedures. Recent work by Dr. Vigmostad and colleagues has resulted in a patented method and benchtop device that isolates cancer cells, with the potential to enable non-invasive diagnostic tests for recurrent bladder cancer. An NIH-funded grant has recently been awarded to support proof-of-concept testing and refinement of the diagnostic device. Dr. Vigmostad will work the users of the device prototype as they perform their respective roles in the bladder cancer diagnosis workflow. By documenting initial experiences, she will begin to identify and incorporate necessary changes to the design or operation of the device. Results will be used to benchmark the technology against existing methods, and to support larger, multi-center studies. Through this PDA, Dr. Vigmostad will work with industry leaders in medical device manufacturing and regulatory affairs, and the experience will greatly enhance the courses she teaches, which focus on various aspects of medical device design.

**VOGAN, TRAVIS T**, Associate Professor, Journalism & Mass Communication, 5 years of service, spring semester

*Title:* The Boxing Film: A Cultural and Transmedia History

Prof Vogan will conduct research for his book *The Boxing Film: A Cultural and Transmedia History*, which will be published by Rutgers University Press. This book will offer the first history of the boxing film and will use the genre to consider the controversial sport's relationship to United States media culture from 1895-2015. The project will require Prof Vogan to conduct research at the Hank Kaplan Boxing Archive at Brooklyn College, New York Public Library, Rod Serling Archive at Ithaca College, Margaret Herrick Library in Los Angeles, and UCLA Film & Television Archives. As a result, the research will necessitate trips to New York and Los Angeles. The PDA will allow Prof Vogan time to visit these archives. Prof Vogan's research for this book will also benefit his teaching at the University of Iowa. He will integrate lessons and assignments on boxing and media into the regular courses on sport and media he offers. Prof Vogan also plans to design and teach a freshman seminar titled 'Muhammad Ali and Media Culture,' with the hope of eventually expanding it into a Boxing in America course.

**WASSERMAN, EDWARD A**, Professor, Psychological & Brain Sciences, 45 years of service, fall semester

*Title:* Bye design! Debunking "designer thinking" in the origin of behavioral and technological innovation  
Most observers attribute prominent human achievements to creativity, insight, or intelligent design. But, these attributions may be made too easily and hastily; they may betray a lack of curiosity at best or intellectual laziness at worst. Wasserman adopts a distinctly different natural science perspective: one that delves more deeply into the history and circumstances surrounding those rare behaviors and innovations we so enthusiastically celebrate. His evolutionary approach rests on well-established biological and psychological principles and may provide a clearer and more accurate vision of behavioral and technological innovation. Wasserman makes his case by drawing on numerous examples from medicine, sports, and the performing arts and will compile them into a book. Beyond the book's readers, he will share his observations and analyses with faculty and students on campus.

**WINN, BRYON S**, Professor, Theatre Arts, 20 years of service, spring semester

*Title:* Theatrical Lighting for Live Television

Professor Winn is submitting this PDA application for the spring semester of 2019. His objective is to conduct onsite research of theatrical lighting design for live televised events. This will include techniques for lighting for the camera with a number of new lighting technologies including the recent adoption of LED fixtures. He will continue his exploration of convergence technologies and, depending on scheduling, serve as designer on one or more large-scale corporate events, work with multiple leading designers in live television lighting design, and continue his strong relationship with new play development at one or more

major regional theatres. This proposal will directly benefit students by expanding their potential employment opportunities, and build upon his work with the successful Entertainment Design course. Additionally, it will provide the foundation for the development of a new course in Lighting Design for the Camera.

**WOHLGENANNT, MARKUS**, Professor, Physics and Astronomy, 15 years of service, fall semester  
*Title:* Sabbatical stay at University of Utah to learn new techniques and initiate new collaborations  
Prof. Wohlgenannt will develop new collaborations and research directions during his PDA stay at the University of Utah. His research will focus on spin-pumping into organic semiconductors and graphene. Organic semiconductors behave like Silicon electronic elements, but are made from inexpensive plastic materials. Organic light-emitting diodes (OLEDs) are light emitting pixels, used in cell phone- and television-displays, made from organic semiconductors. Graphene consists of carbon arranged on a two-dimensional, atomically thin, lattice. Graphene is about 200 times stronger than steel, and efficiently conducts heat and electricity. Recently Prof. Wohlgenannt co-authored a paper that provided the first direct experimental probe of magnetic processes used in the latest generation of the highly efficient OLEDs. This PDA will be focused on innovative spin-pumping experiments that probe transient magnetism. Spin effects are an important aspect of quantum mechanics, which is taught to all physics students who proceed beyond the first year. The PDA will help in the teaching of quantum mechanics, expand interactions between Dept. Physics and Dept. ECE and generate intellectual property.

**WU, XIAODONG**, Professor, Electrical-Computer Engineer, 12 years of service, spring semester  
*Title:* Developing Next Generation Rotating-Shield Brachytherapy System  
Professor Wu's project is directed to establish a novel rotating-shield brachytherapy (RSBT) system to advance high-dose-rate brachytherapy (HDR-RT) to a new paradigm. RSBT is a transformative technique that entails rotating a radiation-attenuating shield about a brachytherapy source to directionally modulate radiation in an optimized fashion. The proposed research will develop enabling concepts and technologies for intra-operative treatment planning and delivery of RSBT, which will pave the way to make RSBT clinically available, empowering the radiation oncology discipline with substantially improved tools for cancer management. This PDA will benefit the University by advancing the research portfolio of the medical and engineering colleges and will benefit students by creating educational opportunities in new areas.

**YUEN, KEE-HO**, Professor, Art and Art History, 17 years of service, fall semester  
*Title:* Explore the new and reinvent the old in casting art work.  
Prof. Yuen's goal for his PDA project is to investigate the applications of chaplets/spacers in Chinese bronzes, and how it may integrate with advanced technology (3-D resin-sand molds printing and MAGMA5 casting process simulation software) in producing his cast, thin-walled sculptural containers. These containers are whimsical commentaries of general life experiences and human emotions. Prof. Yuen will collaborate with the UNI Metal Casting Center, and Prof. Christoph Beckermann, Solidification Laboratory, UI College of Engineering. The project will greatly enhance his creativity and productivity. The MAGMA5 software analyzes and improves the designs of the casting systems, and the 3-D printing technology provides more flexibility in designs and better molds for casting. He will disseminate the result through national and international exhibitions, workshops, presentations, web sites, and classes. His projects reflect the progressive philosophy and the facilities of the School of Art and Art History, as well as the University of Iowa. It is crucial for recruiting students both nationally and internationally.

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