

Contact: Rachel Boon

PROFESSIONAL DEVELOPMENT ASSIGNMENT REQUESTS FOR FY25

Action Requested: Recommend approval of the professional development assignment requests submitted by the Regent universities for FY 2025.

Executive Summary: The Board of Regents must annually approve faculty professional development assignments as specified in Iowa Code §262.9(14) and Board Policy §2.2.R. For 2024-25, the University of Iowa, Iowa State University and the University of Northern Iowa request approval of 106 faculty professional development assignments. Guidance to the institutions permits them to request PDAs for a maximum of 3% of eligible faculty in a year. The requests for 2024-25 represent 2.4% of eligible faculty.

A brief description of the work planned for each proposed assignment is available below. This report addresses the Board of Regents Strategic Plan priorities tied to supporting innovation, economic development, human capital development, and advancing the teaching to support evolving workforce needs. The Board office recommends approval of the professional development assignment requests for FY 2025.

**NUMBER OF PDA RECIPIENTS AND PERCENT OF TOTAL FACULTY
FY 2021 – FY 2025**

	FY 2021	FY 2022	FY 2023	FY2024	FY 2025
SUI	72 (2.2%)	43 (1.3%)	52 (2.1%)	59 (2.4%)	65 (2.7%)
ISU	48 (2.6%)	29 (1.6%)	38 (2.2%)	41 (2.3%)	38 (2.3%)
UNI	14 (1.9%)	0 (0.0%)	8 (1.4%)	9 (1.7%)	3 (0.9%)
REGENT TOTAL	134 (2.3%)	72 (1.2%)	98 (2.1%)	109 (2.3%)	106 (2.4%)

Background

Educational excellence can be obtained only with a vital faculty that actively pursues new developments in knowledge and teaching. A period of sustained time for special projects is essential for maintaining faculty vitality. These projects impact the educational mission and involve research in a wide range of fields of value to the university. An assignment of time for such projects enables faculty members to improve individually and to achieve institutional educational objectives. Valuable outcomes of this program continue to be an increased visibility and prominence of our faculty and departments in some of the newest and advanced areas of research and scholarship, and the direct application of expanded knowledge to students and constituents in Iowa, the nation and the world.

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

University of Iowa. Full-time faculty members (i.e., tenure or clinical-track) with academic year appointments who have completed a minimum of 10 semesters of full-time academic service are eligible for an initial one-semester PDA. Full-time tenure-track and clinical-track faculty members with fiscal-year appointments are eligible for their first PDA of 4.5 months (i.e., one semester) in

length after they have completed a minimum of four years of full-time academic service or the equivalent (i.e., prorated for part-time faculty). Alternatively, fiscal-year faculty members who have completed eight or 11 years of full-time academic service or the equivalent (i.e., prorated for part-time faculty) are eligible for a PDA of nine months (i.e., two semesters), or a full 12 months, respectively. To become eligible for a subsequent award following a PDA, faculty members with academic-year appointments must complete 10 semesters of full-time service; faculty members with fiscal-year 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 faculty professional development assignment. There is no restriction on length of service in order to qualify for a faculty professional development assignment, however priority is given to accomplished senior faculty; to those faculty who are seeking competitive fellowships (e.g., Fulbright Award); and to faculty who have not received a faculty professional development assignment in the past five years.

University of Northern Iowa. Policies and procedures relating to Professional Development Assignments at UNI are defined in the Faculty Handbook. Only tenured faculty members are eligible to apply. A recipient of a PDA is ineligible for a subsequent assignment during the six academic years of active service following an award. Assignments are competitive and a campus-wide committee ensures that only those projects meeting the established criteria (e.g. context, significance and objectives, methods and timetable, and plans for dissemination and long-range importance) in the application are considered and reviewed for overall quality.

Review process. The universities each 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 ability of the department to continue to offer the courses students need to stay on track for graduation, as well as 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 a PDA that is 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 direct application of expanded knowledge to students, Iowans, the nation and the world. Recipients often compete successfully for external grants and awards that benefit the professors, the programs, the universities and the state by generating revenue for core university activities and research opportunities for undergraduate and graduate students.

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, mentor graduate students, and develop modeling systems, software, course materials and multimedia resources for their discipline.

Faculty replacement costs.

**BUDGETED REPLACEMENT NET COSTS
FY 2023 – FY 2025***

	FY2023	FY2024	FY2025
SUI	\$87,217	\$176,071	\$205,443
ISU	**\$0	\$217,702	\$27,464
UNI	\$45,671	\$76,881	\$33,561
REGENT TOTAL	\$132,888	\$470,654	\$266,468

*Calculation reflects net costs (estimated costs minus salary savings)

**In FY23 all costs for ISU were recovered through salary savings of the 12 faculty who requested a full year PDA, leading to an estimated net cost of \$0.

University of Northern Iowa

CALDERON HERRERA, FERNANDO, History, 11 Years of Service, Spring Semester, Faculty
Title: Mexican Radicals, the Third World, and the Eastern Bloc, 1950-1991

This PDA shifts the focus from elite politics to highlight the impact of civil society organizations and nongovernmental actors in shaping Mexico's relationship with Eastern bloc countries and oppressed people's causes in the Third World. The influx of Mexican musicians, teachers, feminists, activists, working-class youth and journalists to the Third World and Eastern Europe had a profound impact on the country's global standing as a champion of the oppressed people. The principle investigator (P.I.) argues these groups were more effective in their efforts to earn Mexico's reputation as a leader in the Third World than the Institutional Revolutionary Government. Mexican social activists had dreams of building a new world where the masses lived their humanity to the fullest extent. Given today's globalized world, it is essential for UNI students to gain insights into the complex sociopolitical dynamics that have shaped our history. The hope is that Iowa's students will use the knowledge they learn from these courses to raise awareness about global issues and their relevance to us while chipping away at misconceptions deeply entrenched in our society. The hope is that this research will be used one day in the near future to galvanize communities in Iowa to establish relationships with communities in Latin America and the Global South to promote solidarity and unity across borders.

MEACHAM, SOHYUN, Curriculum & Instruction, 10 Years of Service, Fall Semester, Faculty.
Title: Book Project: Intersectionality in Asian American Early Childhood

This PDA involves writing a book titled *Early Childhood and the Asian American Experience: Exploring Intersectionality and Addressing Misrepresentations*. Under a contract with Routledge, the book focuses on some of the most salient and poignant issues surrounding Asian American young children and their families such as 1) diversity of Asian American young children, 2) AsianCrit and alternative theories, 3) gendered practices and expectations of Asian American children, 4) social class and untold/hidden poverty in Asian American early childhood, 5) multicultural picture books on Asian/Asian-American-children, 6) intersectional invisibility of Asian American children with disabilities, and 7) Asian American families' experiences in the predominantly-White communities. Between 2000 and 2020 the number of Asian/Pacific Americans has doubled in Iowa, reaching 75,629 in 2022. According to Woods & Poole Economics, Inc., the projected number of Asian/Pacific Americans will be 170,813 by 2050. In Iowa's elementary and secondary schools, 16,158 Asian and Pacific islanders were enrolled during the 2021-2022 school year. A book about Asian American early childhood does not exist and there are no professional development opportunities available in Iowa. This book will be shared with the educators of Waterloo Community School Districts in district-wide professional development sessions after it is published.

PROPHET, MICHAEL, Math, 24 Years of Service, Spring Semester, Faculty
Title: Simultaneous Minimal Extensions

A scientific experiment will often produce data that follows a certain 'shape'. For example, a data set might have a monotone increasing shape or a convex shape. Shape-preserving approximation is the attempt to model data, possessing a known shape, with common mathematical functions that also possess the shape. Within this realm, the goal is to perform such approximations with smallest, or minimal, error. This project seeks to accomplish this goal of minimal-error approximation, using an innovative technique. The new technique involves determining minimal-

error, shape-preserving approximations on smaller “subspaces” of a given large space of data, and then simultaneously “extending” those approximations from the smaller sets to the original large set. Substantial progress has been made on this problem and two papers are in preparation that reveal important characteristics of the minimal-error approximating lines. The Principle Investigator’s belief is that these characteristics will resolve the longstanding problem of determining minimal-error approximating procedures. The citizens of Iowa will gain from the applicable nature of this project. Indeed, previous work of this type has been used by local industries in Iowa to address challenges in travel logistics.

Iowa State University

BARTHOLOMAE, SUZANNE, Associate Professor, Human Development and Family Studies, 11 years of service, spring semester

Title: Creating Innovative Strategies to Advance the Financial Health and Well-Being of All Iowans by Building Competencies and Alliances in a Policy, System, and Environmental Approach

Professor Bartholomae will study multi-level approaches to effectively address the financial health and well-being of individuals and households during the proposed assignment, including enhancements to her Volunteer Income Tax Assistance (VITA) program. The outcomes of this work will benefit Iowans directly, and also result in publications and presentations, and dissemination through Iowa State University Extension and Outreach.

BASSHAM, DIANE, Distinguished Professor, Genetics, Development, and Cell Biology, 22 years of service, full academic year

Title: Genome-scale analysis of autophagy in response to environmental stress in plants

The survival, growth and yield of plants is limited by environmental conditions. Professor Bassham's proposed assignment will explore how plants balance the trade-off between growth and responding to adverse conditions, which will benefit Iowa crop producers, as well as create opportunities for graduate students, and lead to publications and external funding proposals.

BASTAWROS, ASHRAF, Professor, Aerospace Engineering, 24 years of service, fall semester

Title: Application of Machine Learning in Experimental Solid Mechanics

Professor Bastawros will use the proposed assignment to integrate machine learning into experimental solid mechanics research programs at Iowa State. This work will have numerous applications in nanotechnology, aerospace, and materials development, and will lead to technical papers, and external funding proposals.

DRINKWATER, JENNIFER, Associate Professor, Art and Visual Culture, 16 years of service, spring semester

Title: The What's Good Project: Sites of Connection and Renewal

Professor Drinkwater, who also serves as a community arts specialist for ISU Extension and Outreach and faculty associate in the Shrink Smart Project, proposes an assignment to better assist rural communities in Iowa and Mississippi leverage their places of connection (where people gather outside their homes and workplaces) and places of renewal (green spaces). Results include paintings, essays, workshops, presentations, and toolkits to help communities.

DUBISAR, ABBY, Associate Professor, English, 12 years of service, spring semester

Title: Cookbooks as Civic Action: Food Rhetorics for Peace and Justice

Professor Dubisar will use the proposed assignment to work on a book project analyzing cookbooks published between 1968 and 2017 to see how authors take positions on civic and political issues, instruct readers on persuasive strategies, and offer women platforms for perspectives on world affairs.

EULENSTEIN, OLIVER, Professor, Computer Science, 23 years of service, fall semester

Title: Algorithm Development for Genome-Scale Phylogenetic Network Problems

Professor Eulenstein's proposed assignment will address challenges in computational biology to better decipher the genetic adaptations that contribute to the resilience of organisms in changing environments. Results will be shared in leading journals and conference presentations and contribute to external funding proposals.

FEI, ZHE, Associate Professor, Physics and Astronomy, 8 years of service, fall semester
Title: Plasmon-enhanced nano-optical characterizations of biomolecules

Professor Fei will work with undergraduate and graduate students to better understand the structural and electronic properties of biomolecules, with application in areas such as solar harvesting, biosensing, and nanoscale energy/information transfer. The results will lead to external funding proposals and published manuscripts.

HAN, GANG, Professor, Greenlee School of Journalism and Communication, 14 years of service, spring semester
Title: From "Dr. G" to "Dr. AI": A comparative study on AI-powered health risk information seeking and using among Generation Z in a global context

Professor Han will use the proposed assignment to better understand the influence of artificial intelligence, including platforms such as ChatGPT, on health information seeking behavior in the U.S. and East Asia. Outcomes of this work will include conference papers, journal articles, and book chapters, and will be shared with health professionals and strategic communicators.

HANSEN, STEPHANIE, Professor, Animal Science, 14 years of service, fall semester
Title: Crafting the Foundation: Authoring a Comprehensive Book on Graduate Student Mentoring

Federal agencies increasingly include mentoring components in grant applications. Professor Hansen proposes a book project that offers practical guidance to mentors and institutions who wish to enhance the mentoring experience for graduate students and faculty. Outcomes include greater competitiveness in securing research funding, and greater educational/scholarly success for students and faculty.

HILL, MATTHEW, Associate Professor, World Languages and Cultures, 20 years of service, spring semester
Title: An Early American Indian Ceremonial Complex (ca. 9500 years ago) in the Great Lakes Drainage Basin

Archaeology evidence indicates Early American Indian settlers in the Great Lakes Drainage Basin performed a ritual that involved the intentional destruction of material culture. Professor Hill will explore this phenomenon during the proposed assignment, leading to a better understanding of belief systems in society, and how these systems change over time. Outcomes include journal articles and new content for Iowa State anthropology courses.

HU, HUI, Professor, Aerospace Engineering, 9 years of service, spring semester
Title: Development of a World-class Research Center for Wind Turbine Icing Protection at Iowa State University

Professor Hu's assignment will focus on developing a new class of wind turbine icing protection systems, leading to a new externally funded research center at Iowa State, as well as developing new undergraduate and graduate courses in aerospace engineering to stimulate students' interest in renewable energy.

HU, SHAN, Associate Professor, Mechanical Engineering, 9 years of service, fall semester
Title: Acoustic Manufacturing of High-Performance, Long-Life Batteries: Scalability Study

Current batteries display significant loss of capacity and life during fast charging. Professor Hu will her assignment to test a new acoustic method to manufacture more efficient and higher-performing battery electrodes at Oak Ridge National Laboratory (ORNL). The work will contribute to U.S. Department of Energy grant proposals, journal papers, and student opportunities at ORNL.

JIA, YONGHONG, Associate Professor, Accounting, 7 years of service, spring semester
Title: Textual Analysis and Machine Learning in Accounting

The accounting profession is undergoing rapid transformation due to advances in technology, including artificial intelligence. Professor Jia will develop new expertise in this area during the proposed assignment, which will also result in research papers, presentations, and new content for Iowa State accounting courses.

KADELKA, CLAUS, Associate Professor, Mathematics, 5 years of service, fall semester
Title: Towards an in-depth understanding of the interplay between structure and function of gene regulatory networks

Gene regulatory networks describe how collections of genes govern the molecular processes within a cell. Professor Kadelka will combine data science with theoretical and computational analysis to identify the mechanisms that strengthen these networks. Outcomes of Kadelka's proposed assignment include research opportunities for Iowa State undergraduate and graduate students, new research collaborations, and external funding opportunities.

KIM, JEWOO, Associate Professor, Apparel, Events, and Hospitality Management, 7 years of service, spring semester
Title: Application of Text Analytics for Dynamic Performance Forecast in the Tourism Industry

Tourism demand forecasting helps the industry develop effective investment plans and formulate promotional strategies with limited resources. Professor Kim's proposed assignment includes the development of a tool to achieve these objectives. She will share her outcomes through conference presentations, journal articles, and in Iowa State hospitality management courses.

KOHUT, MARIAN, Professor, Kinesiology, 25 years of service, fall semester
Title: Application of omics approaches, bioinformatics, and artificial intelligence methods to identify pathways and biomolecules related to human health

Professor Kohut seeks to develop additional expertise in data analysis with human datasets, including the use of transcriptomic and metabolomic approaches, and using AI to inform health outcomes. The findings will be published in journal articles, provide opportunities for Iowa State graduate students, and be used as preliminary data in NIH funding applications.

KRIZAN, ZLATAN, Professor, Psychology, 16 years of service, spring semester
Title: Fatigue during Investigations: Optimizing High-Stakes Interviewing

Professor Krizan will apply sleep and fatigue science to improve the effectiveness of interrogations and intelligence interviewing during the proposed assignment. His work will result in a new research program on the subject, external funding proposals, and journal articles, while enhancing Iowa State's reputation in legal-psychological scholarship.

LEANDRO, LEONOR, Professor, Plant Pathology and Entomology, 17 years of service, full academic year
Title: Strategies to Improve Sustainability and Resilience of Iowa Agriculture in a Changing Climate

Professor Leandro proposes an assignment to support Iowa's agricultural economy, particularly the intersection of climate change and soybean disease management. The outcomes of this work are expected to include presentations, the development of new extension resources, new content for plant pathology courses, an improved study abroad program for undergraduates, and greater networking among international experts.

LEE, DAEYONG, Associate Professor, Human Development and Family Studies, 6 years of service, spring semester
Title: FPDA Plan, Scholarly Research, and Achievements

Professor Lee will study the impact of governmental healthcare policies on infertility treatments and related factors during his proposed assignment, in collaboration with colleagues from Lehigh University and the Korea Advanced Institute of Science and Technology. Outcomes will include scholarly papers, conference presentations, external funding proposals, and content for Iowa State University courses.

LEE, JU-YEON, Associate Professor, Marketing, 6 years of service, spring semester
Title: FPDA Plan, Scholarly Research, and Achievements

Professor Lee will collaborate with multiple institutions during his proposed assignment to study digital customer misconduct – including scamming, review bombing, trolling, identify theft and cyberattacks – and its impact on businesses. This work, which includes a separate track on federal contracting is expected to include academic papers and conference presentations.

LEVIS, JOHN, Professor, English, 23 years of service, full academic year
Title: Suprasegmentals: Research and pedagogy for English pronunciation teaching

The primary product of Levis' proposed assignment is a monograph on English suprasegmentals, an aspect of pronunciation that both improves speech intelligibility and is misunderstood by applied researchers and language teachers. This work will also contribute to Iowa State University English and linguistics courses.

MIGUEZ, FERNANDO, Professor, Agronomy, 13 years of service, spring semester
Title: Developing data science tools for improved performance of agricultural systems in a circular economy while improving natural habitat and biodiversity

Professor Miguez will develop the data science infrastructure during his assignment to support the strategic placement and monitoring of cover crops and natural prairie in commercial farms, in support of an \$80 million USDA grant with Roeslin Alternative Energy. Results will be shared with both the scientific community and public.

MOSS, KIMBERLY, Associate Professor, Art and Visual Culture, 9 years of service, fall semester
Title: Visual Storytelling at the Intersection of Science and Art

Professor Moss will use the proposed assignment to continue her research in non-traditional approaches to scientific illustration and education, funded by an NSF CAREER grant. She will also develop artwork on Iowa's diverse soils. Products of this work will be presented in exhibitions and publications and support external funding proposals.

NGUYEN, XUAN, Associate Professor, Mathematics, 12 years of service, fall semester
Title: Isometric problems in curved spaces and geometric flows

Professor Nguyen will work to gain a deeper understanding of the geometry of curved spaces and their interactions with solutions of nonlinear partial differential equations during the proposed assignment. Results will be incorporated into graduate mathematics courses at Iowa State University and presented in scientific meetings.

PANTHANI, MATTHEW, Associate Professor, Chemical and Biological Engineering, 9 years of service, full academic year
Title: Interfacing Materials and Biological Systems

Professor Panthani's assignment will focus on combining biological and material sciences to better understand the human brain, communication between cells, and develop novel therapeutics. This work, in collaboration with colleagues in Germany, will lead to external funding proposals, research articles and exchange opportunities for Iowa State University students.

PETEFISH-SCHRAG, AMANDA, Associate Professor, Music and Theatre, 9 years of service, spring semester
Title: Cultivating Dramaturgical Practices in Applied Puppetry: Connecting Art and Impact

Professor Petefish-Schrag will use the proposed assignment to explore innovative approaches to applied puppetry, including the use of new technologies and identifying effective practices from other cultures. Findings will be shared broadly through the theatre community, be incorporated into Iowa State University courses, and attract an international puppetry conference to Iowa.

RANALLI, JAMES, Associate Professor, English, 7 years of service, full academic year
Title: European Portuguese in the Digital Age: A Project Encompassing Research, Teaching, and ChatBot Development

Professor Ranalli proposes a multifaceted assignment based in Portugal, where he will focus on the intersection of technology and language learning, contribute to technology assessment research, and develop a language learning chatbot for European Portuguese. Additional outcomes include scholarly publications, conference presentations, and content for Iowa State University English courses.

SOMERVILLE, ANDREW, Assistant Professor, World Languages and Cultures, 5 years of service, full academic year

Title: Human Ecology and Archaeology in Central Mexico

Professor Somerville will conduct archaeological field research in central Mexico and complete a book proposal concerning human ecology during this proposed assignment. The results of this work will be incorporated into Iowa State University courses on human origins and biological anthropology and shared in papers and conference presentations.

STERNBERG, HENRIK, Associate Professor, Supply Chain Management, 5 years of service, fall semester

Title: Tackling the Supply Chain Management Grand Challenge

Professor Sternberg will conduct a large-scale research project in Switzerland to study how the public sector is involved in logistics innovation and assess the effectiveness of these efforts to address global supply chain challenges. Outcomes include journal articles and new materials for graduate courses.

STEWART, SUSAN, Professor, Sociology and Criminal Justice, 20 years of service, fall semester

Title: Population and Society: Concepts, Issues, and Skills. Creating the Next Generation of Demographers

Professor Stewart will use the assignment to complete the final draft of a book manuscript focused on skills-based learning and data analysis in population studies, which may be used in undergraduate courses in sociology, demography, geography, environmental studies, political science and other disciplines.

TANK, KRISTINA, Associate Professor, School of Education, 9 years of service, fall semester

Title: Furthering Research in Early Elementary CS/CT and STEM

There is growing enthusiasm and awareness, in Iowa and nationwide, of the need for computer science education opportunities for K-12 students. One path to achieve this goal is computational thinking (CS/CT), which applies fundamental computer science concepts to other areas. Tank's proposed assignment will examine early elementary CS/CT and STEM to identify best practices for student learning, which will be integrated into Iowa State's teacher education program.

TOTH, AMY, Professor, Ecology, Evolution, and Organismal Biology, 13 years of service, spring semester

Title: Strengthening international collaborations for bee conservation using big data

Pollinator declines are a major area of research and public interest, with the potential to severely impact ecosystems and threaten food supply. Professor Toth's will travel to Argentina during the proposed assignment to integrate bee conservation with big data, resulting in peer-reviewed publications, seminars, and conference presentations.

TURNER, TRACY, Associate Professor, Finance, 8 years of service, spring semester

Title: Bank deposits and climate change

Professor Turner will use the proposed assignment to study how reduced deposit demand due to climate events impacts banks' lending activity and profitability, as well as local economic growth.

Outcomes of this work include manuscripts, conference presentations, and new content for Iowa State University finance courses.

VAN DUSEN, BEN, Associate Professor, School of Education, 3 years of service, spring semester

Title: Bridging AI and Education: A Roadmap for NLP Integration in LASSO

Professor Van Dusen will integrate advanced natural language processing technology (NLP) in the Learning About STEM Student Outcomes (LASSO) platform, a widely adopted assessment tool used by instructors and students nationwide. This work will serve as the foundation for external funding proposals, as well as contribute to an Iowa State academic minor in applied AI, currently in development.

WINHAM, DONNA, Associate Professor, Food Science and Human Nutrition, 9 years of service, fall semester

Title: Augmenting research methods skills for data analysis and linkages of the social determinants of health

Professor Winham's assignment will focus on using linked community datasets to provide deeper insights into human health. Results are expected to include manuscript submissions, development of new assignments for Iowa State courses on community nutrition, mentoring of graduate students in the analysis of large datasets for research, and external funding proposals.

YAN, JUE, Associate Professor, Mathematics, 17 years of service, full academic year

Title: Cell-average-based Neural Network Method: Development, Analysis, and Application in Aero Dynamics

Professor Yan will use the proposed assignment to advance her research on machine learning neural network methods, in collaboration with colleagues from Iowa State, UCLA and the Swiss Federal Institute of Technology. Outcomes of this work are expected to include external funding proposals, research papers, and new research collaborations.

ZHANG, LING, Associate Professor, Apparel, Events, and Hospitality Management, 5 years of service, spring semester

Title: Exploring the boundless potential of virtual fitting technology for sustainable kid's wear design

Consumers frequently purchase clothing online without the ability to try on items before purchase. Professor Zhang's research focuses on integrating 3D virtual fitting technology, a rapidly expanding market that enhances consumer satisfaction while minimizing paper and fabric waste. Outcomes of the assignment are expected to include designs for sustainable kid's wear, conference papers, a book prospectus and updates to Zhang's apparel merchandising courses.

ZHANG, WEI, Associate Professor, Marketing, 12 years of service, spring semester

Title: Understanding Consumers' Reactions to Family-Owned Businesses

Small businesses account for more than 40% of U.S. gross domestic product. Professor Zhang will use the proposed assignment to analyze a large customer-review dataset and conduct experiments to understand how consumers perceive family-owned businesses. Results will be published in journals, shared in conference presentations and incorporated into Iowa State marketing courses.

University of Iowa

AMAD, PAULA T, associate professor, Cinematic Arts, 19 years of service, Spring 2025

Title: Aerial Sublime: Photography, Cinema, and Visual Culture

Prof. Amad hopes to complete her book Aerial Sublime: Photography, Cinema, and Visual Culture. In her book, Prof. Amad excavates the origins of our current obsessions with viewing and recording the earth from above, focusing upon the intertwined evolution of the airplane and motion picture camera from the late 19th to early 20th centuries. Prof. Amad will devote her time to revising the manuscript in preparation for a publication submission in late Summer 2025. The book will directly feed into Prof. Amad's undergraduate and graduate teaching on the cultural history of media. In addition, as the first publication to study F. W. Brinton, one of Iowa's first exhibitors of moving images who also happened to be an airship inventor, the book will expand Iowans' appreciation of their unique role in film and aviation history.

BERN-KLUG, MERCEDES E, professor, Social Work, 19 years of service, Spring 2025

Title: Connecting Individuals and Families with Good Nursing Home Care: Information is Power

Prof. Bern-Klug aims to improve the quality-of-care nursing home residents receive by helping people understand the federal government's 5-star nursing home rating system and, importantly, the "Special Focus Facility" (SFF) designation which means the nursing home has a track record of providing inferior care. Three sets of Iowans will be interviewed about their understanding of the SFF program and asked for suggestions to enhance consumer education about SFFs: 1) persons age 50+, 2) long-term care social workers, and 3) Area Agencies on Aging staff who connect consumers with long-term care resources, including nursing homes. Results will be distributed as a fact sheet for Area Agency on Aging staff to share with consumers, and in a scholarly article submitted to a peer-reviewed journal. Presentations will be offered to the two nursing home trade associations in Iowa, and Iowa social workers. Iowans facing the need to select a nursing home for themselves or a loved one will be better prepared to use data available free from the government to select a nursing home.

BOEHMKE, FREDERICK J, professor, Political Science, 23 years of service, Spring 2025

Title: The Spread of COVID-19 Policies across the American States

Prof. Boehmke will study the adoption and diffusion of U.S. states' policy responses to the COVID-19 pandemic. He will use a newly compiled data set--prepared with support from the National Science Foundation--that describes the timing of adoption of over two hundred policies adopted by the U.S. states to address the health, economic, and social consequences of the pandemic. Prof. Boehmke will construct and examine measures of state policy innovativeness, state policy leadership, and identify clusters of policies that tended to be adopted together. These results will be written up and published in academic journals. The research will inform scholars, practitioners, and policymakers about how policymakers responded to the COVID-19 pandemic and help guide future responses to major crises affecting the states. Prof. Boehmke will involve undergraduate and graduate students in the research and use the data and research produced in undergraduate and graduate courses to illustrate data analysis and data visualization.

BOND, SARAH E, associate professor, History, 9 years of service, Spring 2025

Title: A Cultural History of the Night in Antiquity

Prof. Bond's current monograph, Strike: Labors, Unions, and Resistance in the Roman Empire, will be out with Yale University Press in early 2025. It explores labor and unionization in antiquity. She will be touring for the book, giving lectures, writing essays, and doing promotions focused on understanding labor and collective action in antiquity. In addition, a new monograph, focused on law, labor, and activities that took place during the night in antiquity will begin to be outlined and

researched for the next monograph topic also to be pitched to Yale Press. Particularly in Roman law, nocturnal acts of thievery, adultery, and other crimes were seen and punished differently if committed at night as opposed to the day. The book argues that aspects of time and cultural perceptions of the night shaped Roman law and, in turn, influenced ideas of deviance during the night in the centuries that followed the fall of the Roman Empire within later Medieval law and Christian literature.

BROCHU, CHRISTOPHER A, professor, Earth & Environmental Sciences, 22 years of service, Spring 2025

Title: Crocodylian Response to Environmental Change in the Cradle of Humanity

Crocodiles were long dismissed as revealing nothing beyond warmth and water at fossil localities, but they may tell us far more. Major changes in crocodile diversity in East Africa over the past 23 million years may reflect changes in vegetation, water pH, and wetland type more than temperature. Crocodiles may thus be an untapped resource in the study of human origins. Prof. Brochu and his students are actively describing new species (as many as 20 remain unnamed) and reconstructing their evolutionary history. Some of these crocodiles were much larger than the Nile crocodile currently found in the region; others had tubular snouts, and others are known to have preyed on our early ancestors. This work will improve the utility of crocodile remains as environmental indicators, and help us understand crocodile response to climate change, which will inform efforts to conserve modern endangered crocodile species. The result will be a series of publications, some derived from student theses, describing the diversity of fossil crocodiles in the Cradle of Humanity and shedding light on the role they played in their ecosystems.

BUCH, ELANA D, associate professor, Anthropology, 12 years of service, Spring 2025

Title: Remaking Home in Later Life

Prof. Buch will examine how older adults in the U.S. creatively remake home in later life. Many Americans continue to imagine living alone or with a spouse as ideal in later life, but a growing number of older adults are challenging these ideas about how, where, and with whom to live as they age. Older adults' experiments in housing reflect adaptations to shifting economic and familial circumstances. Using long-term participant observation methods, Prof. Buch will investigate older adults' experiences living in multigenerational households, with non-kin roommates, and in recreational vehicles in Iowa and in the western U.S. In this way, the project may help identify ways in which housing and elder-care policies and practices might better support the needs of older adults living outside of the single-family norm. Prof. Buch will incorporate findings into courses on the anthropology of aging, caregiving and health, and marriage and family. The project will also result in several journal publications and provide pilot data for external grant applications.

CORREIA, MONICA C D G, professor, Art & Art History, 19 years of service, Spring 2025

Title: Seamless Upholstery Design

Prof. Correia is applying for a Fulbright research grant in advanced weaving, knitting techniques and materials to create textiles for seamless upholstery furniture and hospitality décor. She plans to develop her research at the École Nationale Supérieure des Arts Décoratifs in Paris, France. Upholstery pieces developed in recent years demonstrate many possibilities for seamless shapes and processes warranting research. Correia plans to combine her expertise of computer modeling and 3D printing technologies with weaving and knitting techniques to define the correct weaving methodology to create seamless forms. This project will result in national and international exhibitions, notably in France and the U.K., and publications at prestigious design magazines. Correia will create two new courses that will teach students how to create textiles. These courses will make the 3D Design program comprehensive and unique in the U.S., and the students more competitive for job positions in Iowa, other states and countries.

CRAM, E, associate professor, Communication Studies, 7 years of service, Spring 2025

Title: Disability Ecologies of Care and Memory: The Rhetorical Life of the Johnson County Historic Poor Farm

Prof. Cram will complete research and begin the writing process for their current book, *Disability Ecologies of Care and Memory*. This is a public facing project that examines the process to preserve, restore, and transform the site known as the Johnson County Historic Poor Farm located in Iowa City. With its origins in the English Poor Law System and later rooted in 19th century American culture, national poor farms served as one example of public institutions developed to manage disability and poverty. Prof. Cram will begin writing two chapters of the book manuscript, drawing on interviews, field work at the farm and its distribution networks, in addition to extensive archival research. The book will examine the significance of the shift from the farm's origins to its current multi-faceted design for historical reflection, in addition to imagining and rooting an accessible food system. This research details the national significance of Iowa history in addition to scholarly significance of current county projects. The methods and findings will provide new resources for use in teaching and community engaged research.

CURTO, RAUL E, professor, Mathematics, 42 years of service, Fall 2024

Title: Research Projects in Multivariable Operator Theory

Prof. Curto will focus on three outstanding research projects from the interplay of multivariable operator theory (MOT) with several related areas, e.g., algebraic geometry, optimization, numerical analysis, semidefinite programming, and sensor network localization. He will find concrete solutions to problems for 2-variable weighted shifts, multiplication operators, and Bernstein functions. Prof. Curto and his collaborators have made substantial contributions to MOT, an extremely active research area of functional analysis. His long-term objectives include natural and applicable extensions of MOT, the search for examples, ideas, and methodologies from a wide range of mathematical disciplines, and building a framework to study multivariate settings in mathematics, science, and engineering. Two graduate students are already working with Prof. Curto, while he will mentor a third student during his first year at Iowa. Each project will result in journal articles, presentations at math meetings, and opportunities to enhance and improve the second-year graduate analysis math courses.

CURTO, ROXANNA N, associate professor, French & Italian, 12 years of service, Spring 2025

Title: Writing Sport: The Stylistics and Politics of Athletic Movement in French and Francophone Literature

Prof. Curto will use the research and writing time to complete her current book project, *Writing Sport: The Stylistics and Politics of Athletic Movement in French and Francophone Literature* which examines aspects of physical culture--such as exercise, leisure and sports--in 20th and 21st-Century literature written in French from Europe and the Francophone world, including texts about the Olympic games, tennis, the Tour de France, hockey in Canada, Senegalese wrestling, and soccer in France and Africa. It is the first comprehensive critical study of the representation of sport and physical culture in literature from the French-speaking world. The research informs two courses that she regularly teaches, the popular General Education course, "Global Sports and National Cultures," as well as the upper-level French seminar, "Sport and Society in the French-speaking World." In addition, she will continue work on a new World Language and Cultural Exploration course.

CWIERTNY, DAVID M, professor, Civil and Environmental Engineering, 12 years of service, Spring 2025

Title: Advancing Research and Technology Translation around Water and Health Initiatives in Iowa

Prof. Cwiertyny proposes to (i) advance strategic research initiatives at the Center for Health Effects of Environmental Contamination (CHEEC) (related to cancer and the environment in Iowa and challenges for users of private drinking water wells) and (ii) launch a technology start-up based on an innovative point-of-use water filter invented in his laboratory. Efforts at CHEEC will benefit the public health of Iowans, while advancing research and student training at UI through large-scale initiatives in areas of local and national need. The creation of a technology start-up will help grow the Iowa economy and promote local workforce development.

DAILEY, MICHAEL E, associate professor, Biology, 27 years of service, Spring 2025

Title: Proposal for Learning New Spatial Biology Techniques to Study Mechanisms of Brain Injury in Mice and Humans

Prof. Dailey aims to develop skills in the emerging field of "spatial biology". Using these skills, he will investigate how brain immune cells respond to injuries in both mice and humans. The novel insights derived from this research will contribute to a more complete understanding of the brain's reaction to damage induced by various factors such as exposure to toxins (e.g., pesticides, alcohol), infections (e.g., COVID-19), or neurodegenerative diseases. These areas of study hold direct relevance to the health and well-being of present and future residents of Iowa, including unborn individuals. Prof. Dailey will use the cutting-edge technologies now available within the Iowa Neurosciences Institute's core facilities in the Carver College of Medicine. These resources will help him establish a novel research trajectory, acquire essential pilot data crucial for supporting new applications for extramural grants, and forge new collaborative endeavors, leading to high impact scientific publications. Prof. Dailey will incorporate his new knowledge into the popular upper-level Neurobiology Lab and Cell Biology Lab courses he teaches.

DORALE, JEFFREY A, associate professor, Earth & Environmental Sciences, 20 years of service, Fall 2024

Title: Reconstructing the Long-term Natural Variability of Midwestern Flood Events

Prof. Dorale will study cave deposits and monitor cave conditions to reconstruct the recurrence frequency of large floods in the Midwest. The historical flood record is too short to capture the natural variability of long-term hydrologic changes. This study will extend the historical record over the past 8,000 years or more to see more clearly the natural pacing of large flood events, and how modern changes fit into this long-term pattern. The project will monitor rainfall and cave water levels on a continuous basis to calibrate the cave hydrology to rainfall amounts and allow interpretation of the record preserved in older cave deposits. Flooding is one of the most devastating natural disasters that faces society, so a better understanding of flooding's natural variability will help societies better anticipate and mitigate large floods. This project is also expected to result in journal articles, and new material for Prof. Dorale's courses.

DUCK, STEVE, professor, Tenured (1986), Communication Studies, 37 years of service, full-time for academic year

Title: Rethinking Personal Relationships and Society

Relationships define us, create and develop our sense of self, offer social support in times of need, provide subtle bases for interpersonal persuasion, and create bulwarks of defense against the intrusions of daily hassles and unforeseen emergencies. Good relationships enhance health prospects, likelihood of surviving major life events, expectations of leading a satisfying life, and ability to endure catastrophic experiences. Relationships are also a foundation for better business

in organizations, successful healthcare, and creative education. UI has been a leader in this emerging scholarship and Prof. Duck has provided leadership in this field of study since it started, founding and editing an international journal and a professional society. The PDA permits the creation of a lighthouse review of recent research in its many separate disciplines, developing and extending a new and evolving demonstration of the role of speaking and communicating in the development and maintenance of the social and personal relationships that are critical to successful aging, adolescent development, and adult life -- in workplace, in other organizations and in private experience.

EHRSTINE, GLENN, associate professor, German, 28 years of service, half-time for academic year

Title: "Mother Mary (A Silent Part)": The Protestant Reform of Catholic Religious Theater

Prof. Ehrstine will complete an edition and translation of the most unique drama of the early Protestant Reformation in Germany: Joachim Greff's A Fine New Spiritual Play, Written for the Holy Feast of Easter from 1542. Protestant pastors in Dessau, where Greff served as schoolmaster, were concerned that the play was an unconsidered continuation of Catholic religious theater. In response, five leading Lutheran theologians, including Martin Luther himself, wrote affidavits defending Greff's play and promoting drama as a means of spreading the new faith. The letters of Luther and his fellow theologians represent the first-ever Protestant theory of theater, and the edition will include these letters. The edition will allow Prof. Ehrstine to better address students' religious interests and backgrounds in the classroom. The project serves the broader interests of Iowans and society in general by illuminating the long-standing impact of the Protestant Reformation on forms of religious expression, including religious theater.

GOETZ, CHRISTOPHER J, associate professor, Cinematic Arts, 7 years of service, Fall 2024

Title: Another Castle: Gaming Culture Beyond the Screen

Video games matter. Every year, their earnings outpace Hollywood and music industry revenues combined. And video games matter to UI students in particular: the average college-aged person spends about an hour every day of their life playing them. Though they are still treated as an emerging art form, commercial video games have been around for more than 50 years. Preserving records of gaming's past is proving one of the greatest and most urgent challenges facing the academic study of games. All that remains of the earliest games are physical objects (which are rapidly decaying) and the fuzzy memories of those who grew up playing them. Already lost are key features of the contexts where these games were played. Such contexts are crucial for understanding broader historical changes taking place in media industries today. Prof. Goetz's study seeks to develop methods for preserving the past and present context of video game play. He will incorporate his findings into both undergraduate and graduate courses, which regularly engage with game culture and the challenges of writing media history.

HALL, LOUISA, associate professor, English, 5 years of service, half-time for academic year

Title: Settlement: A Novel

Prof. Hall will research and complete a draft of a novel about a fictional videogame called Settlement and the effects of fictional violence on real-life participants. The novel takes the form of a fictional ethnography of players and characters in the game, using actual videogame ethnographies as examples. In it, Prof. Hall, a critically acclaimed and award-winning novelist, interrogates what it means to identify with a character, to play a character, and to be a character, thereby expanding the sense of what novels can achieve and how fiction illuminates real life. The process of researching and writing the novel will enrich Prof. Hall's expertise in the genres of science fiction and fantasy, as well as new media, all in high demand in the English and Creative Writing Majors at UI, which enrolls more than 600 undergraduate students.

HAND, BRIAN, professor, Teaching & Learning, 18 years of service, Spring 2025

Title: Building Frameworks to Explore Complexity in the Classroom

Prof. Hand will meet with international colleagues and professional development people to continue building a framework that helps analyze the complexity of learning within science classrooms. Learning is not a simple process. It requires teachers to negotiate with students and it requires students to develop and utilize a range of intellectual resources such as critical thinking, language, and argument. Understanding how all these components interact - teacher actions and student development of these resources - will help promote richer learning of science for all students. Prof. Hand will be able to use this framework not only within the teacher preparation and graduate research programs here at the university, but he will be able to utilize this framework in the work with teachers across Iowa. Prof. Hand has an extensive network of teachers and professional development colleagues that will enable the framework to be applied within a wide range of classrooms across Iowa.

HARTLEY, CAROLYN, associate professor, Social Work, 28 years of service, Fall 2024

Title: Disciplinary Sanctions for College Students Found Responsible for Sexual Misconduct: A Scoping Review

Title IX regulations require institutes of higher education (IHEs) to adopt policies and grievance procedures to promptly and equitably resolve sexual misconduct complaints and sanction students found responsible for violating these policies. Current Title IX regulations do not stipulate specific sanctions, but student conduct professionals argue that sanctioning should hold students accountable, educate them about their behavior's impact, and, if possible and appropriate, rehabilitate them back into the campus community. We know little about how IHEs determine or differentially apply sanctions. Prof. Hartley will conduct a scoping review to examine existing literature on how disciplinary sanctions for sexual misconduct are determined based on the type and seriousness of the policy violation. Knowledge gained from this project will benefit Prof. Hartley's course on Campus Sexual Assault: Policy, Prevention, and Intervention. This review will also identify research gaps for future study and may help the UI and other IHEs to improve sanctioning guidelines for student sexual misconduct.

HITLIN, STEVEN, professor, Sociology, 18 years of service, half-time for academic year

Title: The Moral Matrix

Prof. Hitlin will close a gap he encountered in his course, The Social Psychology of Good and Evil, where he found very little on either wider sociological influences on individual moral orientations, or an appropriately focused discussion of how these processes worked with respect to specific domains (e.g., crime, U.S. politics, social media, machines). Americans are very well versed at thinking of brains, individual choices, and moral options as isolated instances; they are less practiced at seeing sociologically, the ways that organizations, structures, cultural beliefs and networks combine with history and individual biography to shape worlds of possibility, and what seem like 'obvious' normative choices. This will a) allow Prof. Hitlin to summarize the state of his field in a scholarly way, b) make this work ideally accessible to a wider book audience, and c) improve his teaching of this course.

JAY, LAURENT O, professor, Mathematics, 25 years of service, Spring 2025

Title: Advanced Numerical Methods in Scientific Computing

Prof. Jay will work on three books: one book on the foundations and analysis of numerical methods in scientific computing, one book on the theory and numerical solution of differential equations, and one research monograph on recent advances in implicit numerical methods for differential equations with possible constraints. The first two books will be available for use when

teaching courses at the undergraduate and graduate levels and will benefit the Department of Mathematics. The research monograph will involve active research with collaborators. Differential equations can describe and model a multitude of phenomena, processes and applications in science and engineering. Prof. Jay has discovered innovative ways to apply certain implicit numerical methods efficiently for such equations. Based on these techniques, the development of new methods in nonlinear optimization is also envisioned. The project will contribute to enhance student success and focused excellence in undergraduate and graduate programs.

JUNG, ANITA, professor, Art & Art History, 17 years of service, Spring 2025

Title: Researching the Waswo Collection of Indian Prints and Natural Dyes in India

Prof. Jung will further her video research in India, interviewing artists in private and government studios who have work featured in the Waswo Collection of Indian Printmaking (WCIP). She will also continue her creative research with natural dyes. Through Prof. Jung's efforts in 2014, the UI became the repository for this valuable collection; the UI Stanley Museum of Art (UISMA) will showcase Prof. Jung's research using QR codes which will contextualize the WCIP during a major exhibition in 2026. A symposium is planned to correlate with the exhibit, which will then travel. Afterward, Prof. Jung's research will remain accessible through the UISMA and the Iowa Digital Library. The WCIP donation recognizes Prof. Jung's efforts, the prestige of printmaking at UI, and the UISMA's custodial commitment to prints. She will also expand her creative research with natural dyes by studying at Tharangini Studios in Bengaluru, a leader in sustainable practices. Her research combines fine art, craft, and biology, which will become incorporated into existing print courses through students eager to explore ecology-safe and native-grown materials for making art in our agriculturally farm-rich state.

KANG, JIYEON, associate professor, Communication Studies, 13 years of service, Fall 2024

Title: Distant Belonging: Chinese Students in the Global University Marketplace

Prof. Kang's monograph project, *Distant Belonging*, explores how the influx of Chinese undergraduates has redefined the landscape of campus life in the U.S. and South Korea over the past two decades. This project delves into the middle-class, non-elite shift in study abroad trends in both countries, illuminating the broader transformations in political, economic and ethical dimensions underlying international and intercultural engagement. The book combines analyses of U.S. and Korean media discourses regarding Chinese international students with in-depth interviews with these students. Prof. Kang's examination of both the U.S. and South Korea campus life provides a comparative lens, contrasting a traditional Western study destination with a newly emerging inter-Asian alternative. With the data collection phase now concluded, Prof. Kang will focus on completing the manuscript. This interdisciplinary project contributes to critical studies of globalization, communication, cultural studies, higher education and Asian studies.

KAYLE, JENNIFER, professor, Dance, 18 years of service, Spring 2025

Title: Ageing Virtuosity

In *Ageing Virtuosity*, Prof. Kayle will conduct creative research in choreography and performance. These new works will posit a mature virtuosity that transcends stereotypes of youthful, extreme athleticism. To critique the "unquestioned marginalization of older bodies" (Susanne Martin) Prof. Kayle centers her own ageing body in two solo projects, one for stage, and one for dance film, with initial premieres in Pennsylvania, Massachusetts and Iowa. Prof. Kayle will hone efficient creative methods to spark productivity despite physical limitations; these will be beneficial to students who must embrace their limits and idiosyncrasies to become artists. To challenge outdated, narrow concepts of virtuosity, and to articulate the value of ageing dancers in the field, Prof. Kayle will apply more recent aesthetic philosophies to analyze outcomes in a scholarly article. As virtuosity expands to include ageing dancers, dance will represent and include more

people who recognize themselves in the expansive beauty of dance. This project aligns with a broader cultural project to stop concealing ageing, to expand space for ageing in public and professional life, and to celebrate it.

KOWAL, REBEKAH J, professor, Dance, 22 years of service, Fall 2024

Title: War Theatre: Dancing American Empire during World War II

Prof. Kowal will complete two chapters of War Theatre: Dancing American Empire during World War II. The book (likely to be published by Oxford University Press) examines the significance of dance for dancers at war including U.S. service members, Japanese-American detainees, global performers on military stages abroad, and audiences such as U.S. troops, military commanders, and the public. She argues that dance, as art, leisure, and entertainment advanced national geopolitical, security, and territorial imperatives. Additionally, the book documents how, for service members on battlefields at home and abroad, and citizens incarcerated in internment camps, dance fostered resilience, helping to manage the stresses of sustained combat and incarceration. Prof. Kowal will conduct research at Columbia University as a Visiting Scholar at the Arnold A. Saltzman Institute of War and Peace Studies, a research center for studies in national security and international relations. Prof. Kowal's research will enhance her courses for UI students in dance historical and theoretical studies.

KOYLU, CAGLAR, associate professor, Geographical and Sustainability Sciences, 8 years of service, Fall 2024

Title: Population-Scale Kinship Networks and Migration & Multi-Hazard Vulnerability

The primary focus of Prof. Koylu's research during this dedicated semester will be on two independent projects. The first project, supported by Prof. Koylu's NSF award on population-scale kinship networks and migration, seeks to develop spatially grounded measures and models of kinship networks, shedding light on their evolution in response to demographic changes, particularly migration. The second project is on quantifying the cascading effects of social vulnerability in a multi-hazard context. Prof. Koylu will incorporate the research findings and methodologies into teaching materials exposing students to real-world challenges faced by migration and communities dealing with multi-hazard scenarios. This research will also provide an opportunity for interdisciplinary learning by integrating social sciences, disaster studies and advanced spatial data science and machine learning techniques. The data, research findings and papers produced by this research will be used to generate case studies in Prof. Koylu's classes in the form of class discussions, projects and assignments.

LALUMIERE, RYAN T, professor, Psychological and Brain Sciences, 13 years of service, Spring 2025

Title: Analyses of Brain Region Interactions

Prof. LaLumiere's PDA will have two core components. First, he will advance his technical skills for his neuroscience research. To do so, he will develop the coding skills for analyzing data obtained from electrophysiological recordings in multiple sites in the brain. Second, he will also develop the technical skills for conducting a technique called fiber photometry. Fiber photometry allows the measurement of neural activity connecting specific regions of the brain. Together, these skills and knowledge will critically advance his research that focuses on the neurobiology of drug addiction, setting up his research program for future success in obtaining external funding and promoting high-quality neuroscience. Developing this knowledge will be particularly beneficial for training and mentoring graduate students in his laboratory as well as contribute to teaching courses within the neuroscience major. Overall, this work will benefit society at large through better understanding of brain functioning, especially regarding to drug addiction and memory-related problems.

LEBEAU, BRANDON C, associate professor, Psychological and Quantitative Foundations, 9 years of service, Fall 2024

Title: Simulation and Power for Instrumental Variable Design

Prof. LeBeau will extend the software package, `simglm`, to include more experimental designs that would allow the framework to be used by more researchers. This work also extends the content from a book, *Simulation and Power Analyses with R*, published in collaboration with CRC Press, which built a software package to simulate and conduct power analysis for primary research studies. This effort could directly impact funding agencies to improve their requirements for evaluating whether the proposed grant project is designed well to support funding requests. The project is expected to generate collaborations with other researchers, both internally and externally, to the UI for grant and study planning and prepare at least one tutorial paper to describe the framework in a specific research context. A new software package version for `simglm` will be disseminated. The project will enhance Prof. LeBeau's teaching by including more statistical code in the statistical programming courses.

LEDDY, JOHNA, associate professor, Chemistry, 32 years of service, Spring 2025

Title: Magneto-electrocatalysis: To Vet and Exploit Our Model

Prof. Leddy and her students have established there is a magnetic effect on electron transfer reactions and catalysis. This is the first documentation of magneto-electrocatalysis. Magnetic gradients increase efficiency of electrochemical energy sources by 40 percent. The model applies to fundamental understanding of catalysis and allows a priori design of magneto-electrocatalysis. Prof. Leddy will vet the model quantitatively against experimental data and use the model to design electrocatalysts for environmentally and energy relevant reactions such as carbon dioxide reduction, oxygen reduction and hydrogen generation.

LINLEY, JODI, associate professor, Educational Policy and Leadership, 7 years of service, Fall 2024

Title: Thriving in College: A National Study of Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ+) Students

Building on her earlier research about lesbian, gay, bisexual, transgender and queer (LGBTQ+) college students, Prof. Linley and two former doctoral advisees are launching a large-scale, national study that provides new insights on what it means to succeed and thrive in college, especially when holding a stigmatized identity. The PDA will provide Prof. Linley with the necessary time to recruit, train and lead a team of doctoral students in conducting qualitative interviews with up to 65 participants. This project will result in a national scope of how LGBTQ+ students succeed and thrive in college, what experiences affect their learning and success, and how LGBTQ+ students' experiences vary by material conditions (such as food and housing insecurity), social identities (e.g., race, gender, dis/ability, spirituality), and institutional profiles/resources (e.g., public, private, minority serving, liberal arts, open access).

MAIERHOFER, WALTRAUD, professor, German, 33 years of service, Halftime for calendar year

Title: British-German Cultural Transfer in Book Illustrations around 1800

Prof. Maierhofer will conduct research for a book analyzing British-German word-image relations around 1800, at the threshold to modernity. The book, tentatively titled *British-German Cultural Transfer in Book Illustrations around 1800*, will focus on specific aspects of works by Johann Heinrich Ramberg, the most prolific German book illustrator of the age who had trained in London. However, little is known about what he brought to the German print and book market from British (popular) visual culture. The monograph will analyze the following aspects: early illustrations of works by Shakespeare and Josephus Flavius; Portraits of King Frederic of Prussia and of George

IV of Britain and Hanover; Illustrations for a German history of the American War of Independence; Adaptations of engravings by Princess Elizabeth for a volume of German poetry; and Caricatures of British sports and past-times as well as anti-Jewish stereotypes. The book will be aimed at a scholarly audience as well as the educated reader. The research will be incorporated into a new undergraduate course for the German major and possibly Art History.

* **MARTIN, DAVID B**, associate professor, Chemistry, 4 years of service, Spring 2025

Title: Mechanistic Investigation of Catalytic Reactions Through Training and Collaboration

The Martin Group develops new methods to synthesize organic molecules through the use of catalysis and photochemistry, and implements these methods for the synthesis of targets with biological activity such as neuroprotective properties. Progress in the discovery of new catalytic methods is often limited by an incomplete understanding of the mechanistic details of the reactions, and new techniques and tools are constantly emerging for the study of reaction mechanisms. Prof. Martin will dedicate time to acquiring new skills and techniques in the Martin lab for mechanistic analysis through outside training and collaboration. This will include gathering new preliminary data for major grant applications. The PDA will also coincide with final preparations for organizing a Gordon Research Conference that Prof. Martin will be co-chairing in July 2025. These activities will elevate the abilities of the Martin Group, enhance instruction in teaching labs and better prepare students for future jobs.

MCLAREN, RACHEL M, associate professor, Communication Studies, 15 years of service, Fall 2024

Title: Improving Parent-Adolescent Communication and Conflict

Prof. McLaren will develop and test the effectiveness of a training intervention aimed at improving communication and conflict between parents and adolescents. During adolescence, parents and teens experience increased conflict and difficulty understanding one another around a host of issues. Furthermore, adolescents' brains are going through rapid developmental change, resulting in intense emotional experiences without the corresponding skills to support their management of those emotions. Thus, parental communication and support is essential for helping teens to learn how to manage conflict and cope with negative emotions. Prof. McLaren will draw on the past 15 years of her research to develop and test the effectiveness of a series of publicly offered workshops, offering evidence-based training and guidance to parents of teenagers in Iowa. This project will result in two journal articles and a book proposal on parent-adolescent communication, as well as contributing new material to Prof. McLaren's undergraduate and graduate courses focused on conflict, emotion and families.

MESSERLE, LOUIS, associate professor, Chemistry, 39 years of service, Spring 2025

Title: Synthesis and Small-Molecule Reactivity of the First Molecular Compounds with Uranium-Uranium and Thorium-Thorium Covalent Bonds

In support of Prof. Messerle's Department of Energy grant and its potential renewal, he will perform hands-on research in uranium (U) and thorium (Th) actinide organometallic (metal-carbon bonding) chemistry. He will learn sophisticated organometallic radiochemical techniques at the University of California at Santa Barbara, in the lab of Prof. Trevor Hayton, a renowned, productive expert and one of the few academic organoactinide chemists. The objectives are to prepare the first compounds with U-U and Th-Th chemical bonds, a radiochemistry Holy Grail, and study their novel electronic structures and small-molecule reactions of environmental importance. These include activation of N₂ to NH₃, capture and conversion of CO₂ to liquids, and conversion of nitrous oxide, a major agricultural greenhouse gas, to lower climate-warming potential products. The expected outcomes are (1) translating radiochemical techniques and safety protocols to his UI lab for student research, (2) developing new content for a popular UI First-Year Seminar on

weapons of mass destruction, and (3) making creative contributions to small molecule activation in organoactinide science.

MITCHELL, COLLEEN C, associate professor, Mathematics, 18 years of service, Spring 2025

Title: Models for Mitochondrial Fission/Fusion Balance

Prof. Mitchell will use mathematical modeling, simulation and analysis to investigate the biochemical and cellular regulation of mitochondrial fission/fusion balance. Mitochondria are membrane bound organelles found in most cells. Mitochondria undergo fission (splitting of one into two) and fusion (the merging of two mitochondria) to maintain a healthy population. However, fission/fusion imbalance has been implicated in a host of diseases including cardiomyopathies, neurodegenerative and metabolic disorders. The objective of this project is to identify control points in the mechanisms coordinating this balance. These control points will facilitate identification of therapeutic targets which modulate mitochondrial dynamics without inducing extreme hyperfission or hyperfusion. This interdisciplinary project combines dynamic models motivated by imaging and biochemical studies and experiments motivated by quantitative model predictions. This PDA is expected to result in publications in both mathematics and physiology journals as well as new materials for Prof. Mitchell's courses.

NEIMAN, MAURINE, professor, Biology, 15 years of service, Spring 2025

Title: Cytogenetic Characterization of a Dramatic Genomic Expansion of Repeated Genetic Elements in Asexual Snails

Why is sexual reproduction so common when asexual (clonal) reproduction is much simpler and less costly? One possibility is that asexuality results in harmful consequences for asexual genomes: sex is thought to be needed to remove harmful mutations from genomes, fueling expectations that asexual genomes should be riddled with these mutations. Whether these expectations are upheld is largely untested, and the sex question remains unanswered. In a high-profile 2021 paper, Prof. Neiman and her group showcased the most convincing evidence to date for mutational consequences of asexuality: asexual versions of a snail study system exhibited dramatic expansion of a set of repeated genes relative to sexual counterparts. Critical data were provided by cytogenetic demonstration of more gene copies in the asexual vs. sexual genomes. These techniques were performed by Dr. Dunja Lamatsch and Dr. Stefan Müller, world experts in cytogenetics in non-model organisms. For this PDA, Neiman will learn these broadly applicable but challenging techniques with these collaborators. She will then teach these techniques to UI students and expand their ground-breaking work on the evolution of sex.

NISHI, YUMIKO, associate professor, Asian and Slavic Languages and Literatures, 11 years of service, Spring 2025

Title: Exploring Native-like Attainment of Semantic Representations in a Second Language

Second language (L2) acquisition research has extensively investigated how adults' language learning process differs from that of children acquiring their first language (L1) and uncovered various factors that influence the quality and speed of acquisition. However, it is still unknown why most L2 learners do not fully attain native-like knowledge. Successful L2 learners know to a great degree what is possible in L2 (thus highly proficient) but fail to exhibit the same level of sensitivity to what is not possible in L2 as native speakers. Researchers have attempted to explain this deficiency in L2 knowledge by attributing it to the unavailability of negative evidence in input or by proposing the concept of "noisy" representations in L2. Building on these studies and her own work, Prof. Nishi will analyze existing production and comprehension data and examine the relationship between the types of errors and the types of tasks to provide a more unified account. The findings will deepen our theoretical understanding of learners' representation in L2, which will also help language educators at UI and beyond make evidence-based instructional decisions.

ONEL, YASAR, professor, Physics & Astronomy, 36 years of service, Fall 2024

Title: Research on High Energy Physics at CERN, DUNE Experiment Planning at the FERMI National Lab and Detector Development for Cancer Therapy at UI.

Prof. Onel will carry out his research project on high energy physics (particle physics) at CERN, Geneva, Switzerland, and DUNE experiment planning at the FERMI National lab near Chicago. He participated in the upgrade of the HCAL detectors at the Large Hadron Collider (LHC) project and tested and commissioned his detector HF- Forward Calorimetry for the CMS (Compact Muon Solenoid) Collaboration. He designed and built components of this detector in UI Physics machine shops and contributed to the data analysis with his graduate students. He also worked on planning of the future upgrade projects for the CMS Outer Tracker, Barrel Timing Layer and High granularity Calorimeter. For the DUNE project he is the group leader for integration and installation of the photon detector system and he has worked on the planning and technical design report. Prof. Onel is also a member of the UI-P3 proposal together with Radiation Oncology faculty to develop ultra-fast FLASH RT radiation treatments for cancer and will work on the development of dose-monitoring system.

PETER, RICHARD, associate professor, Finance, 8 years of service, Spring 2025

Title: Determinants of Prevention Decisions

Prof. Peter's project concerns the analysis of prevention decisions. In risk management, prevention refers to costly activities that reduce either the probability of loss or the severity of loss (or both). Prof. Peter's research will analyze income effects on optimal prevention, the interaction of prevention decisions with other lifecycle choices, and the role of loss aversion in optimal prevention. Prof. Peter will use microeconomic models of decision-making under risk to carry out his analysis and write several computer programs to illustrate and visualize the obtained results. The project is expected to result in three working papers, several conference and seminar presentations, and ultimately three journal articles. Prof. Peter will incorporate his findings into his undergraduate courses Principles of Risk Management and Insurance and Enterprise Risk Management. The results will also help households and businesses in Iowa make effective safety and loss control decisions.

PHILLIPS, BRYAN, professor, Biology, 13 years of service, Fall 2024

Title: Testing the Role of Amyloid Protein Aggregation in Animal Development

Prof. Phillips will develop new genetic tools and test the role of two enzymes in protein aggregation, which is newly implicated in normal animal development. Prof. Phillips studies developmental biology, specifically how protein aggregation, normally associated with neurodegenerative diseases in the form of amyloid protein tangles, can also have unexpected beneficial roles in the regulation of animal developmental cell fate specification. Using the model organism *Caenorhabditis elegans*, he will develop new ways to limit each enzyme's function and visualize their expression in *C. elegans* cells. The award will benefit Prof. Phillips' teaching through incorporation of this underappreciated process's role in diverse cellular activities (cell fate, hormone signaling, protein storage).

PIZZI, ELISE, associate professor, Political Science, 7 years of service, Fall 2024

Title: Government Response to Natural Disasters

Natural disasters sometimes spark political violence. At other times, no violence follows disaster events. Prof. Pizzi will examine the role of government policy response in shaping the relationship between disasters and violent conflict. The project will collect new time series cross national data and conduct several case studies on disaster response across the globe. With the support of an NSF grant, Prof. Pizzi and her coauthor will oversee student research and data collection and

coding of the type of government response. In addition to publishing several scholarly journal articles, she will incorporate results into her undergraduate course, the Politics of Natural Disasters. This project addresses a growing area of concern as natural disasters become more frequent and severe. The results will inform policy makers and support understanding of the critical role government policy choices play in preventing violence after natural disasters.

PLATTE, NATHAN R, associate professor, Music, 12 years of service, Spring 2025

Title: The Music of Mary Poppins (1964)

Prof. Platte will complete a book manuscript on the music of Disney's Mary Poppins (1964) that he has been invited to write for Oxford University Press. As the first book-length study of the music from Poppins, it offers a comprehensive study of the film's songs through the lenses of literary adaptation, musical structure, vocal performance, orchestral arrangement, choreography, set design, and visual editing. Prof. Platte has gathered the archival material for writing the book and will submit the formal proposal to the publisher this fall. The PDA will provide the necessary time for writing the final three chapters. The book extends Prof. Platte's research on mid-century Hollywood film music and supports a second book project on director Robert Wise, whose musicals share personnel with Poppins. Insights from the book will be shared with undergraduate and graduate music/film majors in Studies in Film and Music, undergraduates in the general education course Introduction to Film Music, and Iowans through Prof. Platte's ongoing partnership with Iowa City's FilmScene cinema, where he contributes educational programming and a podcast series.

PRINCE, ANYA E R, professor, Faculty, 6 years of service, Fall 2024

Title: Protecting Health Privacy in a Data-Driven World

Prof. Prince will complete research related to data protections and health privacy. She will specifically focus on how innocuous data can be leveraged to infer sensitive health information of consumers. In our current legal system, private companies are generally free to collect vast amounts of data from consumers. Complications arise, however, when this data collection unearths health information. This PDA will explore several key aspects of health privacy, including complications of regulating health privacy through a patchwork of state and federal laws and current data sharing practices between companies and governments. This research will culminate in several articles accessible to a variety of audiences. It will help provide insight into how to effectively protect health privacy, benefiting Iowans and society in general. Finally, the results will be incorporated into future teaching of the health privacy landscape.

RADLEY, JASON J, professor, Psychological and Brain Sciences, 12 years of service, Fall 2024

Title: Development of Expertise for Implementation and Analysis of In Vivo Neuronal Activity Recordings in the Rat

The goal of the Radley laboratory is to understand the neural bases of the stress response, with the aim of applying this information to better inform the understanding and treatment of stress-related diseases in humans. Using rats, Radley's group has identified several of the key brain pathways that coordinate behavioral, physiological, and hormonal responses to stressors. One outstanding question concerns not just which pathways are important for regulating stress, but how activity changes in these pathways define behavioral responses. Recently, exciting new methods have become available enabling researchers to record activity in neuronal populations in awake, behaving rats. One such method, called fiber photometry, enables researchers to measure changes in calcium levels in brain regions from optical detectors after expressing genetically encoding calcium reporter molecules in neuronal populations that may be pre-selected by the investigator. The current project will enable Prof. Radley to develop expertise in this method to advance the aforementioned research goals.

RAHMAN, SHARIF, professor, Mechanical Engineering, 28 years of service, Spring 2025

Title: Robust Design Optimization by an Extended Spline Dimensional Decomposition

Prof. Rahman will conduct fundamental research on design optimization of complex engineering systems in the presence of uncertainty. Novel methods will be created to determine the best design alternative, considering uncertain system behavior, influenced by dependent input variables. The research will markedly speed up the existing optimization process, potentially producing breakthrough solutions to challenging design problems. Potential engineering applications include ground vehicle design for improved durability and crashworthiness, fatigue- and fracture-resistant design for aerospace applications, and design of microelectronic packaging under harsh environments. Beyond engineering, the results from this research will benefit Iowa and U.S. economy and society through potential application in areas such as energy, finance and management, and transportation and logistics. The software from this research, to be integrated with engineering courses, will provide a unique and valuable opportunity for students to learn, develop, and apply cutting-edge computational techniques for solving complex design problems.

RATNER, ALBERT, professor, Mechanical Engineering, 20 years of service, Fall 2024

Title: Advancing Biomass to Energy Through International Collaboration

Prof. Ratner will study how commonly available biomass source material can be more effectively used to generate energy. Specifically, Prof. Ratner will work on both experiments focused on improving biomass gasification of agriculture waste, commercial trash, and residential material like old tires, and computer modeling to improve the economics of these processes. Improving this transformation process will directly benefit Iowans (mainly farmers) and at the same time reduce the country's reliance on fossil fuels. Prof. Ratner will build on his 20 years of experience in this field to bring together a strong international team, with collaborators in China, Brazil, and Portugal, to tackle this issue. Prof. Ratner will visit and work with each collaborator in their country during the PDA and the collaborators will all visit UI. The results of this effort are expected to be published in up to ten scholarly articles and applied in Thermodynamics (undergraduate), Engines and Powers Plants (undergraduate), and Combustion Theory (graduate) courses.

SANDER, EDWARD, professor, Biomedical Engineering, 12 years of service, Spring 2025

Title: Gaining Expertise in Mechanobiology, Regenerative Medicine, and Engineered In Vitro Systems

Prof. Sander is seeking a PDA to receive hands-on training with colleagues at Trinity College Dublin on essential techniques in the areas of mechanobiology, regenerative medicine, and engineered in vitro systems (organ on chip). Specifically, Prof. Sander will work to develop a novel engineered in vitro model of the joint to study how adipose tissues contribute to pathologies and potential treatments in joint disease. In addition, completion of the PDA will add to Prof. Sander's teaching portfolio by allowing him to introduce new technological developments and topics into the classroom so that students are more competitive and better prepared for the workforce. Completion of this training will provide new opportunities for research funding, contemporary and cutting-edge course material for undergraduate/graduate students, and the potential for new commercial enterprises that will benefit the state of Iowa.

SCHLESINGER, LISA R, associate professor, Theatre Arts, 9 years of service, Spring 2025

Title: Enheduanna Rising: An Opera

Prof. Schlesinger will write a new transdisciplinary opera: Enheduanna Rising with composer Layale Chaker (YoYo Ma's Silk Road/Daniel Barenboim's Divan Orchestra), the third opera in the Iphigenia Project, a series of performances focused on the refugee crisis begun in 2014. Prof. Schlesinger's second opera, Ruinous Gods, co-commissioned by the Spoleto Festival USA,

Opera Wuppertal and Nederlandse Reisopera, will premiere in 2024 and tour internationally through 2026. The first work, Iphigenia Point Blank, premieres in New York City in 2023. To date, the Project is published/produced at over 35 national and international venues. Prof. Schlesinger's artistic research in international theatre and social justice supports UI's mission to expand the performing arts and her position as co-director of the Iowa Playwrights Workshop and instructor in the Social Justice and Performing Arts Program. Maintaining excellence in American and international theatre benefits the UI community and the state of Iowa by broadening visibility of the arts and is integral to the university and Theatre Arts department strategic plans.

SHYAMALKUMAR, NARIANKADU D, associate professor, CLAS-Statistics and Actuarial Science, 19 years of service, Spring 2025

Title: Discrimination-free Actuarial Decision-making via Debiased Data Representations

The ability to leverage information in novel datasets to increase the efficiency of marketing, pricing, valuation, and claims processes is increasingly becoming a core competency of insurers. Data relying on longstanding institutions and methods imbibe remnants of their embedded social bias, with the use of such data prone to result in unfair decision-making. The insurance industry's crucial societal role as one of the primary providers of financial security makes unfairness in any of its actions have a pervasive detrimental influence on society, justifiably gaining heightened public attention. For data subject to historical bias, the mere absence of protected-group identification variables is no longer a sufficient justification for the fairness of derived decisions. Prof. Shyamalkumar plans to develop methodologies that can provably debias data and thus prevent implicit bias, as such an effort can alleviate the valid concerns of stakeholders and help increase the efficiency of the insurance marketplace. This PDA will result in several journal articles and be the basis for a new actuarial graduate seminar.

STEWART, DAVID E, professor, Mathematics, 25 years of service, Spring 2025

Title: Development of Ridge Function Methods for Machine Learning

The mathematical analysis of machine learning involves issues of approximation, dimension reduction and optimization. Prof. Stewart will analyze the use of ridge functions with respect to each of these issues, seeking methods to create ridge function approximations that are not only accurate and computationally efficient with respect to time and memory resources, but also efficient with respect to the amount of data. With these methods, a new and efficient machine learning architecture can be created which should have some substantial improvements over current architectures. This work will involve collaborations with researchers at Texas A&M University and the University of Houston.

SUPP-MONTGOMERIE, JENNA, associate professor, Religious Studies, 9 years of service, Halftime for academic year

Title: Deep Religion: Water, Wilderness, and Infrastructure

Prof. Supp-Montgomerie will develop her book manuscript, Deep Religion: Water, Wilderness, and Infrastructure, and submit a proposal and key chapters to a top-tier press. Deep Religion explores how water comes to simultaneously embody unfathomable wilderness and highly controlled infrastructure. This book argues that this paradoxical position is rooted in a religious history that has fueled images of water as turbulent and void while paving the way for the water management techniques that have sustained colonialism. Attending to the ways we have engaged with water opens opportunities to shift that relationship toward sustainability. Floods, sea level rise, and drought mark the present, but Prof. Supp-Montgomerie takes the utopian stance that water's refusal of human management can motivate an important turn from ecological apocalypse to new modes of collective survival. In addition to historical and global themes, this book contributes needed attention to the Upper Mississippi in and around Iowa in the growing

field of humanities research on the environment, and Prof. Supp-Montgomerie will introduce themes of local and global sustainability into her undergraduate courses at UI.

SWANSON, CARRIE E, associate professor, Philosophy, 10 years of service, Fall 2024

Title: Plato's Euthydemus and Timaeus

Prof. Swanson is currently completing a translation and commentary on Plato's badly neglected middle period dialogue 'Euthydemus' for Hackett Press. Her manuscript will be submitted in summer 2024. This book will be published as a stand-alone monograph. However, it will also be published in Hackett's 2nd edition of 'Plato: Complete Works', the most widely consulted translation of Plato's dialogues in English. Prof. Swanson aims to submit a second monograph on the 'Euthydemus' for a more specialized audience in Fall 2026. Prof. Swanson is also working on a third book project, 'Reason and Imagination in Plato's Timaeus'. By the end of her PDA, she plans to complete two journal articles based on chapters from this book. She will also submit a book proposal, her 'Timaeus' project, to Brill Publishing.

SWANSTON, JEREMY, associate professor, Art & Art History, 8 years of service, Spring 2025

Title: At This Table

Community-engaged research often requires cross-disciplinary and truly collaborative processes. Graphic design as a discipline, employing the lens of human-centered design, can play a pivotal role in community-engaged research where making visible what is marginalized is key. "At This Table," is an initiative by Prof. Swanston to engage the Perry, IA community to identify improvement areas and co-construct solutions. This initiative will involve graphic design graduate students from UI and Iowa State University, who will receive training and mentoring on community-engaged best practices in graphic design research. Dissemination will focus on a community exhibition, a policy report, and scholarly publications and presentations. Established collaborations and partnerships within the Perry community, graphic design scholars, and students will allow this project the infrastructure and breadth for sustained engagement and collaboration. This project has clear implications for enhancing the partnerships between the graphic design academic community and rural communities in our state that make visible critical needs in underserved populations and optimal solutions.

TURNER, RICHARD, professor, Religious Studies, 22 years of service, Fall 2024

Title: African American Religion, Human Rights, and Liberation Sounds

Prof. Turner will explore the historical connections among African American religion (Christianity and Islam), the struggle for human rights, and music (rhythm and blues, hip hop, and jazz) from the 1960s to 2020. The book project analyzes the influence of the Black Baptist minister Martin Luther King, Jr. and the Sunni Muslim leader Malcolm X on music, human rights, and religious values in the Black Power movement in the 20th century and the Black Lives Matter movement in the 21st century. The book will offer a wide lens on the autobiographies of Nina Simone, Marvin Gaye, Kendrick Lamar, Alicia Keys, and many other outspoken musical artists who exemplify a larger history of the values that King and Malcolm X represented, illustrating that African American human rights protest was not the exclusive terrain of political and religious leaders but also the stomping ground of black musicians and their fans. Prof. Turner plans to complete the writing for book chapters. The PDA will enrich Prof. Turner's teaching in four university courses. The project will help improve understanding of human rights and democracy in the U.S.

VARADARAJAN, KASTURI, professor, Computer Science, 23 years of service, Fall 2024

Title: Clustering and Some Generalizations: An Algorithmic Perspective

Clustering refers to the task of partitioning a set of data items into groups of similar items, called clusters. In this PDA, Prof. Varadarajan will study novel generalizations of clustering. In particular,

he will investigate the performance of algorithms for these generalizations when there are limits on the amount of resources that these algorithms can consume. This proposal is expected to result in a more unified understanding of the algorithmics of clustering. This investigation will result in new directions for research that will inform Prof. Varadarajan's mentorship of graduate and undergraduate students at UI.

VERZEMNIEKS, INARA M, associate professor, English, 8 years of service, Fall 2024

Title: Foul Ball: A Human History of Soccer, Error, and the Triumph of Calamity

In the world of soccer, achieving a "perfect" game is so elusive, only 15 players over the last 75 years have been rated 10/10 by the sport's most exacting statisticians. The game is far more often a story of how one constantly recovers from error. Combining journalism and longform literary nonfiction, Prof. Verzemnieks will write a book that offers a personal and historical account of the game, illustrating how it is uniquely structured to reveal critical, even paradoxical, lessons about our responses to human frailty and failing. The book will offer readers a way to reframe their own conception of what it means to recover from calamity in their lives. Given that soccer is the most popular sport in the world, the book promises to have global reach. Prof. Verzemnieks will teach the research methods she develops through the project to students in both UI graduate and undergraduate writing programs, where classes in creative writing about popular phenomena are in high demand.

VOGAN, TRAVIS T, professor, Journalism and Mass Communications, 11 years of service, Spring 2025

Title: Sports, Power, and Resistance and Development of the Sports Media and Culture Major

Prof. Vogan plans to work on two related projects. First, he will complete the co-edited anthology, Sports, Power, & Resistance: Legacies and Futures. Second, he will collect information and develop strategies to help sustain and grow the Sport Media and Culture major, which launched in fall 2023. The Sports, Power, and Resistance anthology will benefit our students and the state of Iowa by enhancing UI's longstanding reputation as a hub for humanistic research on sport. Prof. Vogan's work on the Sport Media and Culture major will help to strengthen this new major by developing strategies that will make it distinctive within the context of UI and nationally competitive with similar programs at peer institutions. This work will have a tangible impact on the quality of education that our Sport Media and Culture majors receive. It will also benefit the state by attracting new students to UI who are interested in this unique major.

WANG, ALICE, professor, Marketing, 18 years of service, Spring 2025

Title: Navigating New Market Horizons: Implications of Emerging Technologies for Businesses, Consumers, and Policy Makers

New technological advances, such as AI, augmented reality, and the metaverse, offer remarkable opportunities to the way people live. While past research focused on the development and characteristics of these technologies (e.g., accuracy and reliability), Prof. Wang's research takes the perspective of technology adopters. The objective of her research is threefold. First, businesses can use her findings to better integrate technology in creating products and services that benefit society at large. Second, consumers will become aware of the benefits and risks of new technologies and make smarter decisions in their daily lives. Third, with insight from her research, public policy makers can develop policies that better protect businesses and consumers, regulate related industries, and facilitate further technological advancement. She will incorporate her findings into her MBA classes, Marketing Management. She will also involve Ph.D. students in the research, offering them an opportunity to acquire research skills and establish a solid foundation for their academic careers. She plans to share the findings with UI, local communities, and the state of Iowa.

WASSERMAN, EDWARD A, professor, Psychological and Brain Sciences, 51 years of service, Fall 2024

Title: Mapping the Development of Relational Learning in the Brain

Prof. Wasserman will try to answer the longstanding and challenging question: How does the brain decide whether two stimuli are the same as or different from one another? This relational discrimination goes beyond any single sensory system, as pairs of sights, sounds, and smells can all be the same or different. To conduct this new direction in his research, Prof. Wasserman will collaborate with expert neuroscientists at the Ruhr University in Bochum, Germany to map the development of a discrimination between same and different pairs of visual stimuli in awake and behaving pigeons using functional magnetic resonance imaging (fMRI). Of special interest will be the activity of different brain structures as same-different learning unfolds. Clarifying the biological basis of this key instance of relational cognition may shed fresh light on the mechanisms of neurological disorders as well as the evolutionary origins of human thought. Prof. Wasserman will report the results of this research in scientific journals and will incorporate those findings into his teaching and supervision of undergraduate and graduate students at UI.

WHITAKER, KARA, associate professor, Health and Human Physiology, 5 years of service, Fall 2024

Title: Postpartum 24/7 Study

This PDA will provide Prof. Whitaker with dedicated time to write and submit a renewal grant application for her ongoing Pregnancy 24/7 Study, as well as complete additional relevant coursework in R for statistical computing. Pregnancy 24/7 examines associations of physical activity, sedentary behavior, and sleep (24-hour activity) in each trimester of pregnancy with adverse pregnancy outcomes that increase future cardiovascular disease (CVD) risk. The renewal application will expand to the postpartum period, examining associations of 24-hour activity across postpartum with incident hypertension and CVD risk. Additional time dedicated to research, grant writing, and statistics will enhance Prof. Whitaker's teaching in several courses, as her experiences will be applied to enhance student engagement and learning. Further, if the PDA results in a successfully funded grant application, this will create meaningful opportunities for undergraduate and graduate student research. The proposed research will provide essential data to link 24-hour activity with CVD risk and can inform future 24-hour activity interventions to improve health during the perinatal period and beyond.

WHITE, STEPHANIE H, associate professor, Nursing, 10 years of service, Spring 2025

Title: Advancing Cancer Symptom Management in Rural Areas

Prof. Gilbertson-White will advance her research in the area of cancer symptom management care for people living in rural areas. Leveraging the success of her prior evaluations of the mobile application OASIS (Oncology Associated Symptoms & Individualized Strategies), developed at UI, the work proposed for this PDA includes further data analyses and publication from collected data, conducting analyses with new datasets to predict cancer symptom development, and planning an NIH R01 grant application to test the app across different cancer populations. The primary focus of this research is on accessibility and individualized care, addressing the gap in symptom management services in rural areas. This approach recognizes the prevalent use of smartphones, even in rural settings, and takes advantage of this technology to extend high-quality care. The anticipated outcomes include high-impact publications, advanced symptom prediction algorithms, and a comprehensive grant application plan, together contributing to improved self-management, reduced distress, and enhanced quality of life for people with cancer living in rural areas.

WILCOX, JONATHAN, professor, English, 35 years of service, Fall 2024

Title: Cocky Scribes: Writerly Posturing in Early Medieval English Manuscripts

Scribes are fundamental to the preservation of knowledge prior to printing. Prof. Wilcox's project will shed light on how the scribes of early medieval England display a posture in their work, which is useful for understanding how they tilt the record that survives in their writing. Prof. Wilcox will reconstruct the practices of the scriptorium to reveal the playful competition that pits scribes against authors, against each other, and sometimes against their audience. The resulting analysis is relevant to modern society, in which truth and misinformation are increasingly contested topics, as well as to the medieval world, showing how the attitudes of those who create the record shape what gets recorded. The project will result in conference presentations and journal articles, contribute to a scholarly book, and provide new material for Prof. Wilcox's undergraduate and graduate courses.

WO, JAMES C, associate professor, Sociology, 6 years of service, Spring 2025

Title: Examining the Effects of Alleyways on Crime in Denver (CO) Neighborhoods

Criminological theories suggest that the presence of an alley, a narrow passageway between or behind buildings, has consequences for crime. Environmental criminology implies that such presence is associated with neighborhood crime problems, because alleys provide environments in which a potential offender can act on a target (person or object) with low probability of detection or resistance for their criminal behavior. Despite this prevailing assumption, there is a dearth of empirical work to test the effects of alleyways on crime. Prof. Wo will examine the effects of alleyways on crime in Denver (CO) neighborhoods using secondary data analysis and systematic social observation. He will involve graduate students in the project, in which they will use Google Earth Pro to pinpoint the environmental characteristics of different alleyways, in addition to determining where alleyways are located. The findings will assist policymakers and bureaucrats to understand how to "design out crime" and build more sustainable communities. This project is also expected to result in several journal articles and new material for Prof. Wo's undergraduate and graduate courses.

WU, XIAODONG, professor, Electrical and Computer Engineering, 18 years of service, Spring 2025

Title: Developing Next Generation Rotating-Shield Brachytherapy System

Prof. Wu's project is designed to establish a novel spatial-temporal hybridized deep learning framework to lay down a foundation for the development of precision medicine decision support tools for patients with acute cardiovascular disorders, which address urgently-needed diagnostic decisions, resolve time-sensitive therapeutic dilemmas, and obtain advanced imaging markers to develop specific primary and secondary prevention strategies. The tool development will be exemplified by the differentiation of Takotsubo syndrome (TTS) from acute myocardial infarction (AMI) and their prognostication prediction with point-of-care ultrasound (POCUS) echocardiograms. This PDA will benefit the state of Iowa by advancing the research portfolio of the medical and engineering colleges and will benefit students in both colleges by creating educational opportunities in new areas. In addition, the developed innovative digital healthcare solutions will help improve quality at the point of care and better serve underserved rural Iowans, reducing health care disparities for the state of Iowa.

YABLON, NICHOLAS, professor, History, 20 years of service, Fall 2024

Title: "From the Sky Scrapper to the Wild Flower": Charles G. Hine's Photographic Survey of New York's Broadway

Prof. Yablon plans complete his book, From the Sky Scrapper to the Wildflower. This book examines the impact of speculative development on New York's social, architectural, and

ecological fabric circa 1905, as documented by the amateur photographer-historian, Charles Hine. Following Broadway up the entire island of Manhattan, Hine produced a unique survey that focused on the threat not just to "historic" buildings, but also to ordinary buildings, social groups, animals, and flora. The book will contribute to the history of photography, preservation, and urban history, as well as cultural history and U.S. history. He will continue to draw on the Hine archive to teach UI students how to use photographs as historical sources, and how to do urban history. Hine's photographs will also prompt student discussions of the various forms of commercial and popular culture that emerged on Broadway. Lastly, Prof. Yablon's Hine project is related to his commitment to helping Iowans explore the hidden histories of their own state, as evidenced in his work as evaluator for a "Humanities Iowa" project on photography and memory in Iowa.

* Will have met the 10-semester (academic-year appointment) or 4 years (fiscal year appointment) service requirement prior to taking the assignment approved, per SUI policy.