Contact: Rachel Boon

PROFESSIONAL DEVELOPMENT ASSIGNMENT REQUESTS FOR FY 2028

Committee Action Requested: Recommend approval of the professional development assignment requests submitted by the Regent universities for FY 2028.

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 2027-28, the University of Iowa, Iowa State University and the University of Northern Iowa request approval of 89 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 2027-28 represent 2% 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 teaching to support evolving workforce needs. The Board office recommends approval of the professional development assignment requests for FY 2028.

NUMBER OF PDA RECIPIENTS AND PERCENT OF TOTAL ELIGIBLE FACULTY
FY 2024 – FY 2028

	FY2024	FY 2025	FY 2026	FY 2027	FY 2028
SUI	59 (2.4%)	65 (2.7%)	56 (2.3%)	67 (2.1%)	49 (1.9%)
ISU	41 (2.3%)	38 (2.3%)	43 (2.8%)	35 (2.1%)	38 (2.3%)
UNI	9 (1.7%)	3 (0.9%)	5 (1.5%)	3 (1%)	2 (0.7%)
REGENT TOTAL	109 (2.3%)	106 (2.4%)	104 (2.4%)	105 (2.0%)	89 (2.0%)

Background: A key contribution to the economy, communities and citizens of Iowa is a vital faculty that actively pursues new developments in knowledge and teaching. A period of sustained time for special projects is essential for advancing knowledge, creativity and innovation. These projects impact the educational mission and involve research in a wide range of fields of value to the university and the state. An assignment of time for such projects enables faculty members to improve individually, provide significant support for students, 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 quality of the application, the feasibility of the plan of work, the likelihood of success, the past record of productivity of the applicants, the criticality of the timing of the leave and the developmental impact of a leave.

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. Applications for patents, world premier artistic works and new instructional materials all provide significant value.

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, compile patent applications, present papers, work in industry, prepare grant proposals, mentor graduate students and postdoctoral researchers, and develop modeling systems, software, course materials and multimedia resources for their discipline.

Faculty replacement costs: Costs noted in the table below will be reduced, where possible, by having colleagues cover courses or deferring non-required courses to a later time.

BUDGETED REPLACEMENT NET COSTS
FY 2026 – FY 2028*

	FY 2026	FY 2027	FY 2028
SUI	$251,385	$291,161	$153,686
ISU	$0	$3,624	$59,526
UNI	$33,001	$30,307	$20,817
REGENT TOTAL	$284,386	$325,092	$234,029

*Calculation reflects net costs (estimated costs minus salary savings from PDA that are longer than one semester in duration)

Iowa State University

ADURI, PAVAN, Professor, Computer Science, 25 years of service, spring 2028
Title: Algorithmic Foundations of AI: Inference, Sampling, and Replicability
Aduri's assignment aims to make modern AI systems more reliable and consistent. The project is expected to produce new algorithms, peer-reviewed publications and external funding proposals. Aduri will also incorporate the results into Iowa State courses on Big Data algorithms and advanced AI.

AJJARAPU, VENKATARAMANA, Professor, Electrical and Computer Engineering, 40 years of service, fall 2027
Title: Power System Stability and Control in IBR-Dominated Power Systems
The increasing prevalence of converter-interfaced generation, particularly from data centers which are also inverter-based resources (IBRs) creates stability challenges for system operators such as utilities in the case of forest fires and other events. Ajjarapu will work with system operators in California to help address these challenges, resulting in numerous seminars and course modules for Iowa State courses.

BOGA, MIRAY, Assistant Professor, Industrial Design, 1 year of service, 2027-2028 academic year
Title: Playing with Life: Bio-Inspired Speculation for Reimagining Ecological Relationships
Boga will investigate how biological knowledge, play and speculative thinking can work together to engage young people with biodiversity, non-human life and ecological relationships. Results will include peer-reviewed publications, conference presentations and inputs for an educational game. *NOTE: Completion of this request is contingent upon the successful outcome of a Cornell University Society for the Humanities Fellowship application, which offers a $68,000 stipend*.

BOUFFARD, JEFF, Professor, Sociology and Criminal Justice, 9 years of service, fall 2027
Title: Examining the utility of a novel measure of rape myth acceptance as a predictor of the use of sexual coercion tactics among college student and general population samples
Bouffard will evaluate a new tool to assess the incidence of sexual coercion by both men and women, as well as the "rape myth" that individuals may bring about their own victimization. Projected outcomes include a new survey to be distributed to Iowa State students, peer-reviewed publications and conference presentations.

BREMER, JEFF, Professor, History, 15 years of service, spring 2028
Title: The Business History and Political History of the United States
Bremer proposes an assignment as a Fulbright Scholar in India, teaching history courses on U.S. business and politics to help Indian students better understand American history, culture and government. He will also work on his fourth book, Civil War Iowa, which features thousands of pages of previously unpublished material from the State Historical Society of Iowa archives.

CEYLAN, HALIL, Professor, Civil, Construction, and Environmental Engineering, 24 years of service, spring 2028
Title: AI-Enabled Circular and Climate-Resilient Transportation Infrastructure
Ceylan will collaborate with transportation and highway researchers in Portugal, Spain and Germany to improve pavement technologies during the proposed assignment, including the recycling of concrete aggregate, reclaimed asphalt, plastics, wind turbine blades and other industrial/agricultural coproducts into pavements. Ceylan will also seek a Fulbright U.S. Scholar Award to support his project.

CHEN, RUI, Professor, Information Systems and Business Analytics, 9 years of service, fall 2027
Title: Strengthening Research and Teaching on Decision Making and Technology-Related Risk in the AI Era
AI is rapidly changing how organizations make decisions, serve customers, manage risk and protect information. Chen will use the assignment to strengthen his research and teaching in this area to improve decisions and reduce risks. Projected outcomes include the development of datasets and pilot projects, working papers, and external funding proposals.

COCHRAN, ERIC, Professor, Chemical and Biological Engineering, 20 years of service, fall 2027
Title: From Invention to Implementation: Translational Commercialization of Sustainable Polymer Technologies through SABER Chemical and SoyLei Innovations
Cochran will concentrate on two Iowa State startup portfolios during the proposed assignment: SABER Chemical's high-performance blends of compostable polyesters and biorenewables for coatings and polymer additives; and SoyLei Innovations' soybean-derived materials for pavement and roofing applications, including lower-temperature crack sealing, cold-patching and coating systems. Results will also be incorporated into Iowa State engineering courses and also expand demand for Iowa-grown soybean feedstocks.

DORIUS, SHAWN, Professor, Sociology and Criminal Justice, 13 years of service, spring 2028
Title: Building AI-Ready Research, Teaching, and Outreach Programs
Dorius will deploy AI to amplify his scholarship in the proposed assignment, including decision-ready tools for rural communities such as dashboards, surveillance systems and local-level health reports. Projected results include AI-augmented research workflows, integration of AI into undergraduate courses and publications.

DYCHES, JEANNE, Associate Professor, School of Education, 10 years of service, fall 2027 or spring 2028
Title: Advancing Secondary Literacy Initiatives in the Era of AI and Science of Reading
Secondary literacy (grades 6-12) stands a pivotal intersection of rapid technology due to AI, and growing demands for research-based, science of reading-informed literacy learning. Dyches will use the proposed assignment to examine how AI is integrated into pre-service teacher coursework, complete research in critical disciplinary literacy and develop community-based literacy initiatives with a public library and Iowa State University Extension and Outreach. Outcomes will include journal articles, external funding proposals and new course materials.

FENG, HUI, Professor, Marketing, 13 years of service, spring 2028
Title: How Marketing Contributes to Firms' Financial Health
Feng will visit three U.S. universities during the assignment to conduct research related to marketing leadership and the discipline's impact on financial performance. Projected outcomes include publications and material for Iowa State business courses in strategic marketing management.

FLEMING, CODY, Associate Professor, Mechanical Engineering, 6 years of service, spring 2028
Title: Beyond Scalar Rewards: A Landscape and Task-Arithmetic Approach to Safe Reinforcement Learning

"Reward hacking" occurs when an AI model, trained via reinforcement learning to maximize a reward signal, reaps rewards without completing an underlying task, similar to earning frequent flyer points without flying. Fleming will use his assignment to develop a framework to address this machine learning challenge, resulting in external funding proposals and other scholarly products.

HARGROVE, MARK, Morrill Professor, Biochemistry, Biophysics, and Molecular Biology, 28 years of service, fall 2027
Title: Investigation of phytoglobin function Anthroceros agrestis
Hargrove will use the assignment to conduct physiological and genetic research in a new plant model system, Anthroceros Agrestis (hornworts) to test long-standing theories on the role of phytoglobins during oxygen-limited growth. Projected outcomes from this work include publications and external funding proposals.

HAYWOOD, RACHEL, Associate Professor, World Languages and Cultures, 23 years of service, fall 2027
Title: Latin American Science Fiction in the Space Age
Haywood will use the proposed assignment to complete two chapters of her second scholarly monograph, which examines how science fiction developed in Latin America during the early Cold War and Space Age (1945-1969). Haywood will also draft the introduction, prepare a proposal for submission to a university press and generate new materials for Iowa State courses.

HERRMANN, POL, Professor, Management and Entrepreneurship, 27 years of service, spring 2028
Title: Mindfulness and Organizational Innovation: A Research Program on Strategic Leadership and Entrepreneurship
Herrmann will use the proposed assignment will develop a research program examining how mindfulness – an individual's ability to remain attentive, recognize new perspectives, and respond thoughtfully to challenging situations – influences organizational innovation and performance. Outcomes will include publications and conference presentations, the development of an international research network and new material for Iowa State courses.

HUANG, MEI-HSUAN, Professor, Music and Theatre, 14 years of service, spring 2028
Title: International Artistic Collaboration, Piano Performance and Pedagogy, and Creative Scholarship through Taiwan Engagement
Huang's proposed assignment, to be completed in Taiwan, will focus on piano master classes, chamber music coaching, international artistic exchange, and recording a newly commissioned work. This work will support long-term international recruitment, strengthen Iowa State's global presence and contribute to Huang's teaching at Iowa State.

HUANG, XIAOQIU, Professor, Computer Science, 25 years of service, 2027-2028 academic year
Title: Exploring Fungal Defense Mechanisms or Controlling Fungal Plant Diseases
Huang's assignment will work with USDA colleagues to address fungal pathogens, a critical vulnerability in crop biosecurity that destroys an estimated 30% of global crop yields, annually. This work includes specialized software to scan genome sequences of the pathogens and determine how to suppress their growth. Results will be shared through publications and contribute to major grant proposals.

KIM, JAEYOUN, Professor, Electrical and Computer Engineering, 20 years of service, fall 2027
Title: ISU-SNU Collaborative Research on Flexible Electronic and Photonic Devices
Electronics and optical devices made of soft, flexible materials are becoming increasingly critical in robotics, biomedicine and agriculture applications. Kim will collaborate with colleagues at Seoul National University to develop expertise in flexible device fabrication technologies, which will support student coursework and Iowa manufacturing. Kim has requested $4,000 in travel funding through the BK21 Global Visiting Fellowship program.

KRISHNAMURTHY, ADARSH, Professor, Mechanical Engineering, 12 years of service, fall 2027
Title: Advancing Geometry Kernels and AI Driven Experimentation for Next Generation Digital Twins
Krishnamurthy will use the assignment to develop next-generation digital twins – virtual replicas of physical systems used to monitor, predict and optimize performance in manufacturing, agriculture, and healthcare. Outcomes include open-source software, publications and content for Iowa State engineering courses.

LEE, SOJUNG, Professor, Apparel, Events, and Hospitality Management, 14 years of service, 2027- 2028 academic year
Title: Advancing Global Research on Community and Consumer Experiences: Fandom, Tourism, and Club Business
Lee will focus the proposed assignment on two projects: examining how global fandom contributes to personal wellbeing, and how destinations welcome and engage traveling fans; and developing practical tools for private clubs to engage members and improve their experience. Lee has received $25,000 in funding to support her travel, with an additional $43,000 pending.

LEVITAS, VALERY, Distinguished Professor, Aerospace Engineering, 18 years of service, fall 2027
Title: Coupled Strain- and Stress-Induced Phase Transformations under High Pressure
Levitas will work with colleagues from the Karlsruhe Institute of Technology in Germany and the U.S. Department of Energy Argonne National Laboratory during the proposed assignment to examine how materials behave under extreme conditions. Projected outcomes include course materials, recruitment of graduate students and postdoctoral scholars and external funding proposals. Levitas has also requested funding from the von Humboldt Research Award program to support his project.

LIU, HAILAING, Professor, Mathematics, 24 years of service, 2027-2028 academic year
Title: AI, PDEs, and Control
Liu will use the proposed assignment to develop new mathematical foundations for AI, including how modern AI systems can be better understood using mathematical tools from partial differential equations, optimal transport and optimal control. Projected outcomes include peer-reviewed publications, new computational models to support future research and teaching and material for Iowa State math, AI and data science courses.

MARSEE, MONICA, Associate Professor, Psychology, 11 years of service, fall 2027
Title: Measurement of Online Antisocial Behavior in Teens and Emerging Adults
Marsee's proposed assignment involves refining her new measure of online antisocial behavior, which is designed to assess how often young people engage in harmful behavior online,

including filming and posting illegal acts on social media and how these behaviors may spill over into everyday life. Projected results include journal articles and conference presentations.

MORGAN, EMILY, Associate Professor, Art and Visual Culture, 18 years of service, 2027-2028 academic year
Title: Photographers Between Labor and Capital: Siegel/Pallas/Banks/Orear
Morgan will study four 20th century photographers who worked with American industries and labor organizations, focusing on how photography helped both sides advance their causes and goals. In addition to a book project on the subject, outcomes will include new material for art history courses and conference presentations. Morgan has received $11,000 to support her travel and has applied for an additional $110,000 in fellowship support.

NARASIMHAN, BALAJI, Distinguished Professor, Chemical and Biological Engineering, 25 years of service, fall 2027
Title: Advancing particle-based vaccines towards clinical trials
Narasimhan, director of Iowa State's Nanovaccine Institute, will use the proposed assignment to advance his research on particle-based platforms for vaccine delivery, including the development of first-in-human clinical trials and applications for animal health. Narasimhan has requested $360,000 in funding from ImmunoNanoMed to support his project.

REBER, JACQUELINE, Professor, Earth, Atmosphere, and Climate, 11 years of service, fall 2027
Title: Extending Scholarship and Grant Funding on mechanics and formation of deformation bands
Reber will use the proposed assignment to systematically collect field observations of deformation bands, which form in porous rocks such as sandstones through small changes in compaction. These bands, because they change the porosity or permeability of sandstone, in turn impact access to natural resources such as water or hydrocarbon. Results from this work will include journal publications, external funding proposals and research/field opportunities for undergraduate, graduate and high school students.

REMES, JUSTIN, Associate Professor, English, 11 years of service, 2027-2028 academic year
Title: Duchamp and Cinema
Remes' assignment will focus on the role of Dada artist Marcel Duchamp on film history, adding perspective to other accounts of his art and personal life. The primary outcome is a peer-reviewed, single-author book; research for the book will also be published in film studies journals and presented at scholarly conferences.

ROSSINI, AARON, Professor, Chemistry, 11 years of service, fall 2027
Title: Building Next-Generation Solid-State Nuclear Magnetic Resonance (NMR) Capabilities for the Atomic-Level Characterization of Functional Inorganic Materials
Recent developments in ultra-high-field NRM spectroscopy is transforming scientists' ability to understand catalysts, semiconductor nanocrystals, and other advanced materials that will be essential to future technologies in sustainable energy, electronics and manufacturing. Rossini's work in this area will accelerate innovation and strengthen Iowa State's leadership in advanced materials, as well as provide opportunities for graduate students, and lead to external funding proposals.

SCHALINSKE, KEVIN, Morrill Professor, Food Science and Human Nutrition, 27 years of service, spring 2028

Title: Research and Educational Collaborations with Ulster University, Northern Ireland
Schalinske, who studies the interaction between diet and chronic disease, will use the assignment to develop research collaborations with colleagues at Ulster University and its Food, Nutrition, and Obesity Research Group, with a particular focus on whole eggs and skim milk. Projected results include opportunities for student and faculty exchange, publications and external funding proposals.

SCHWAB, ANDREAS, Professor, Management and Entrepreneurship, 18 years of service, spring 2028
Title: Addressing the Replication Crisis by Training the Next Generation of Scholars: Globalizing the Advancement of Replication Initiative in Management
Scientific theories become trustworthy only when their findings are confirmed in replication studies, but this does not happen often in the management field. Schwab will use the proposed assignment to address this challenge by training new teams of doctoral students and their faculty mentors through his Advancement for Replication Initiative in Management. Projected outcomes include recruitment of graduate students, external funding proposals and new academic partnerships. Schwab has applied for a $26,500 Fulbright Global Scholar award to support his travel.

SEN, SRIMOYEE, Associate Professor, Physics and Astronomy, 7 years of service, fall 2027
Title: Chiral gauge theories, the Standard Model and their computability
The Standard Model of particle physics forms the foundation of both high energy and nuclear physics, but several important questions related to the model remain unresolved, including first-principles computer simulation. Sen will use the assignment to test a new paradigm to address these questions, working with colleagues at the University of Washington. This work is expected to enrich Sen's physics courses and result in publications and funding proposals.

SHARMA, ANUJ, Professor, Civil, Construction, and Environmental Engineering, 12 years of service, 2027-2028 academic year
Title: Retooling in AI for Civil Infrastructure: Research Partnership in India, Course Redevelopment, and Departmental Capacity
Sharma will spend the proposed assignment in India, working with students at BITS Pilani who plan to transfer to Iowa State, and conducting research into the impact of AI on traffic signal data collection and modeling. Sharma will apply for funding from the Fulbright-Nehru Academic and Professional Excellence Fellowship program and Indian government to support his project.

SMITH, RACHEL, Associate Professor, School of Education, 7 years of service, spring 2028
Title: Strengthening Campus Relational Networks for College Student Success
Smith will use the proposed assignment to examine how the design of college campus environments support the formation of students' interpersonal relationships with faculty, staff and peers, and how those relationships impact student success outcomes. Results are expected to include journal articles and conference presentations, as well as materials for Iowa State graduate courses.

STEWART, AUSTIN, Associate Professor, Art and Visual Culture, 13 years of service, spring 2028
Title: One Cycle: A Year in Sound at Whiterock Conservancy
Stewart will use the assignment to develop a new sound-based artwork/composition while attending an artist residency at the Whiterock Conservancy in Coon Rapids, Iowa. The work will provide audiences with the rare opportunity to listen to Iowa's native ecosystems as they

change with the seasons. The work will be published via streaming services and uploaded to the Iowa State Library's digital repository for use by researchers, students, artists and the public.

VASWANI, NAMRATA, Professor, Electrical and Computer Engineering, 21 years of service, fall 2027
Title: Federated Low Rank Matrix or Tensor Learning for AI Models Fine-Tuning and Fixing K-12 Math Skills
Vaswani's assignment has two goals – expanding her research into fine-tuning AI models and developing a Math for Engineering Education research program – which will be completed with colleagues at Iowa State, the Indian Institute of Science-Bangalore and Purdue University. Projected outcomes include publications in both engineering and math education journals, building on her successful CyMath K-12 math tutoring and support program.

WANG, JIGANG, Professor, Physics and Astronomy, 18 years of service, spring 2028
Title: Space-Time Quantum Tomography of Driven Many-Body States
Wang's assignment is focused on how non-equilibrium quantum materials, which hold great potential for revolutionizing next-generation microelectronics, quantum computing and energy-efficient technologies evolve over time. Outcomes of this research are expected to include new instrumentation capabilities, open-source data analysis pipelines, publications and external funding proposals. 9

WEBER-FEVE, STACEY, Morrill Professor, World Languages and Cultures, 20 years of service, spring 2028
Title: The Work of Laughter: Comic Embodiment and Feminist Critique in Contemporary French Women's Cinema
Weber-Feve will use the assignment to advance her book-length manuscript on contemporary French women's comedy filmmaking from 1968-present, including how filmmakers use physical comedy to offer powerful critiques of gender and women's lives. Projected results include journal articles, course materials and conference presentations.

WHEATLEY, JEFFREY, Assistant Professor, Philosophy and Religious Studies, 6 years of service, fall 2027
Title: The Sacred and Play: Researching and Teaching at the Intersection of Games and Religious Studies
Wheatley, who is active in Iowa State's Game Design major and numerous initiatives related to game studies and design, proposes an assignment to study the overlap between scholarly theories of religion and games, as well as develop four teaching guides on the possibilities and challenges of game design in the humanities. Results will be shared in journal articles and conference presentations. Wheatley has requested a $3,000 Strong Research Fellowship to support his project.

University of Iowa

Adhikari, Bijaya, associate professor, Liberal Arts and Sciences-Computer Science, 7 years of service, Fall 2027
Title: Generative AI-driven Epidemic Forecasting
Epidemic forecasting is frequently hampered by poor data quality, which introduces structural uncertainties that limit its usefulness for policymaking. While Generative AI has proven effective at data imputation in other fields such as computer vision and natural language processing, applying it directly to epidemiology risks introducing domain bias and failing to capture unique seasonal or behavioral trends. To bridge this gap, Prof. Adhikari proposes to build a novel hybrid approach that integrates mechanistic models with deep generative AI, aiming to harness the power of machine learning while maintaining the accuracy and interpretability required for public health. The outcomes of this project will provide a foundation for external funding requests to agencies such as the NSF, specifically targeting the Computer and Information Science and Engineering Future CoRe Programs and the Smart Health (SCH) initiative. Additionally, Prof. Adhikari will explore mission-aligned opportunities within the NIH and DoD.

Barragan, Eloy, professor, Liberal Arts and Sciences-Dance, 22 years of service, Fall 2027
Title: Commuting Worlds
During his PDA, Prof. Barragán will develop two interconnected creative projects that use screen dance and kinetic inquiry to explore how movement communicates ideas and emotions across cultures, geographies, and technologies. The first is a screen dance titled *Commuting*, inspired by the New York Transit Museum's exhibition on transit history and *The New Yorker's* transportation cartoons. The second is a structured study of movement patterns in public transit environments in New York City and Iowa City, generating choreographic material to inform the film. Choreography will be developed with dancers at UI and in New York City, drawing on rhythms of traffic, pedestrian flow and architecture. The completed film will be submitted to international festivals. Together, these projects examine commuting as a shared yet culturally specific embodied experience. The research will enhance teaching in choreography and screen dance courses through applied methodologies and creative practice.

Beck, Margaret, professor, Liberal Arts and Sciences-Anthropology, 20 years of service, Fall 2027
Title: Pigments and Potters at Cahokia
Cahokia was an Indigenous urban center in Illinois (now partially preserved as Cahokia Mounds World Heritage and State Historic Site) that grew to over 15,000 people in the 11th century. Prof. Beck will investigate Cahokia's production of redware ceramics through detailed analyses of the pigments on vessel surfaces. She will visit and analyze archaeological collections from Cahokia at the Illinois State Museum, prepare funding proposals for chemical and mineralogical analyses, and consult with at least one tribal nation with ancestral ties to Cahokia. The project is part research investigating pigments in the midcontinental U.S., which will be incorporated into teaching and community engagement activities. The results will advance knowledge on resource use and the transition to ceramic specialization in the ancient city of Cahokia.

Charles, Jean-Francois, associate professor, Liberal Arts and Sciences-Music, 11 years of service, Fall 2027
Title: Completion of the Book "The Spectral Nature of Sound"
We have known for more than two centuries that any wave, including sound, can be seen as a sum of simple sine waves, called the spectrum. Today we can manipulate sound in the spectral domain, unlocking many possibilities, from digital audio compression (mp3) to cleaning up audio

recordings to creative movie sound effects. During his PDA, Prof. Charles will complete a book providing a solid grounding in the history, techniques, and processes of spectral sound processing. The book will also highlight the work of major historical figures who investigated sound with curiosity and creativity, including Ernst Chladni and Alexander Graham Bell. Prof. Charles will complete a large set of software examples that will accompany the text; half of these interactive examples will support learning activities, while the other half will constitute programming examples. These applets will be fully integrated with the text and will provide readers with an interactive and multisensorial learning experience. This project will result in a book and will improve the material already developed for Music and Technology courses.

Cheng, Chi-Lien, professor, Liberal Arts and Sciences-Biology, 37 years of service, Spring 2028
Title: Evolution of Reproductive Transition in Land Plants
During the PDA, Prof. Cheng will concentrate on the reproduction aspect of plant life using the model plant, a fern. Ferns do not flower but do produce spores and gametes like flowering plants. The gene network of the flowering process has evolved from ferns to flowering plants. Prof. Cheng's lab has been actively investigating how key genes in the network function in the fern. Complementarily, Dr. Ambrose at The New York Botanical Garden is working on a family of genes involved in the structural change during the transition to reproduction. During the PDA, Prof. Cheng will collaborate with Dr. Ambrose on the investigation of this network in this and other ferns and the evolutionary implication. The goal is to write a collaborative proposal to be funded by NSF. The research results will be incorporated into courses and inform training and outreach.

Chifan, Lonut, professor, Liberal Arts and Sciences-Mathematics, 15 years of service, Fall 2027
Title: Prospectus for a Project on the Structural Theory of von Neumann Algebras and Their Applications and Connections to C*-Algebras, Geometric Group Theory, and Dynamics
Prof. Chifan will advance research in operator algebras and strengthen student training. He will focus on several longstanding open problems on rigidity and classification of von Neumann algebras, pursued through collaborations with leading scholars in the U.S. and abroad, leading to high-impact publications and competitive grant proposals. Prof. Chifan will expand opportunities by mentoring PhD students, developing new dissertation topics, and creating an interdisciplinary graduate course that connects operator algebras with group theory and dynamics. Students will gain exposure to active research areas, improved mentorship, and stronger preparation for academic and professional careers. By advancing mathematical knowledge and training highly skilled graduates, Prof. Chifan’s work will contribute to workforce development and innovation in Iowa and society more broadly.

Craig, Jennifer N, professor, Business-Management & Entrepreneurship, 7 years of service, Spring 2028
Title: Leader Well-Being and the Changing Role of Middle Managers in Contemporary Organizations
Prof. Nahrgang Craig will conduct research to address two pressing leadership challenges: declining leader well-being and the changing role of middle managers in increasingly flattened organizations. She will examine the types and sources of resources leaders receive from their professional and personal networks and assess how these resources influence leader well-being. In a complementary line of work, she will synthesize existing research on middle managers to clarify their role and generate directions for future study as organizations reduce managerial layers and adopt new technologies. The project will involve quantitative field

research and a comprehensive literature review, with participation from doctoral and undergraduate students at UI. Prof. Nahrgang's findings are expected to produce multiple scholarly publications and conference presentations, while also offering practical insights for organizations and informing teaching in leadership and management courses.

Daly, Scott R, professor, Liberal Arts and Sciences-Chemistry, 13 years of service, Fall 2027
Title: Experiments with Radioactive Elements to Train a Nuclear Workforce
With support from the National Nuclear Security Administration (NNSA), Prof. Daly will train students in the safe handling and analysis of radioactive materials to address the ongoing shortage of nuclear workers with experience working with elements beyond uranium. These elements are critical to ongoing programmatic efforts in the U.S. such as the production of thermal batteries used in space probes and planetary rovers, cleanup of contaminated Cold War sites, and management of the U.S. nuclear stockpile. Prof. Daly and his students will work side-by-side to prepare new chemicals with nuclear isotopes that are considered safe for fundamental studies in an academic lab equipped with appropriate monitoring and engineering controls. This work will provide UI students with rare training opportunities that will significantly enhance their competitiveness on the job market upon graduation. In addition, the chemical research to be performed is expected to yield several peer-reviewed publications in high-impact scientific journals.

Dasgupta, Soura, professor, Engineering-Electrical & Computer Engineering, 39 years of service, Spring 2028
Title: Machine Learning for Neural Processing and Treatment
Prof. Dasgupta will investigate three aspects of neural processing, diagnosis and treatment using machine learning and adaptive control. The first is treating Parkinson's disease symptoms using Adaptive Deep Brain Stimulation using ubiquitous EEG data. The second is to diagnose and distinguish between various forms of Traumatic Brain Injury. The third is developing a novel theory of Diffusion-based Generative AI and applying it to the generation of synthetic neural data. At least five journal papers and three proposals to NIH should ensue from this research. He will develop a course on Generative AI that will benefit Electrical and Computer Engineering students and a proposed certificate in AI and machine learning. Parkinson's disease and other neural disorders affect a wide swathe of an aging population. Dasgupta's techniques promise to minimize the need for clinical expertise and particularly benefit rural clinics across Iowa.

De Souza Talarico, Juliana N, associate professor, Nursing-Faculty, 7 years of service, Fall 2027
Title: Foundational Infrastructure for a Longitudinal Rural Cohort to Study Social, Environmental, and Biological Risk Factors for Cognitive Decline in Iowa
Prof. Souza-Talarico will use her PDA to establish the foundational infrastructure for a longitudinal rural cohort study in Iowa examining environmental, social, psychological, and biological determinants of cognitive decline. She will analyze baseline and 12-month cohort data, expand community partnerships, develop Community and Research Advisory Boards, and prepare a competitive NIH R01 proposal–providing proof-of-concept for longitudinal research in underserved rural populations. Prof. Souza-Talarico will generate preliminary data, establish methodological and logistical frameworks and advance dementia risk reduction research. She will enhance scholarly productivity through manuscripts and presentations, and provide undergraduate and doctoral students with real-world, locally relevant examples of cognitive aging, rural health and community-engaged research. Findings will be disseminated to academic audiences, community stakeholders and local organizations.

***Dick, Diane L,** professor, Law-Faculty, 5 years of service, Fall 2027
Title: Legitimacy, Collaboration, and Human Agency in Business Law
Prof. Lourdes Dick will use her PDA to complete a law review article on how modern corporate restructurings are presented as fair and to make substantial progress on a coauthored article with Prof. Joseph Yockey on how business law supports human collaboration in an age of artificial intelligence. Prof. Lourdes Dick will produce publishable scholarship, conference presentations, and new teaching materials for Corporate Finance, Debtor-Creditor Law, and federal tax courses. The work will strengthen the UI's profile in business law, enrich student learning with current research and contribute to legal and policy discussions in Iowa and beyond about how companies handle financial difficulties, how new technologies affect workplace decision-making, and why human judgment still matters.
* *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.*

Dvorak, Abbey L, associate professor, Liberal Arts and Sciences-Music, 7 years of service, Spring 2028
Title: Music Therapy and Mental Health: A Practical and Evidence-Based Approach
Prof. Dvorak will complete the writing of her scholarly book: *Music Therapy and Mental Health: A Practical and Evidence-Based Approach*. This book will be the first comprehensive and research-informed guide to music therapy in mental health care across models, contexts, approaches and populations. The project synthesizes evidence in four areas in which music and music-based interventions may be particularly effective for mental health--mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness. Prof. Dvorak will write the remaining chapters, revise completed chapters and complete a manuscript draft for final submission to *Oxford University Press*. The book will enrich teaching and clinical training at the UI by providing a comprehensive resource for students, strengthen evidence-based mental health practice across Iowa, and support broader societal needs by expanding access to effective, non-pharmacological mental health strategies using music.

Estapa, Anne, associate professor, Education-Teaching & Learning, 9 years of service, Fall 2027
Title: Strengthening Rural Teacher Preparation: A Research-Informed Pilot Program Built from Literature, Novice Teacher Voices, and National Program Trends
Prof. Estapa will synthesize findings from a national study of teacher education programs, previously analyzed data from novice rural teachers in Iowa, and UI teacher-placement patterns to design a rural teacher preparation pilot program focused on improving recruitment and retention in rural schools. She will draw on the national dataset, complete a comprehensive literature review, and integrate these insights with local Iowa data to develop a model that strengthens coursework, clinical experiences, and partnerships--building a structured pathway for students preparing to teach in rural communities. This work will enhance teacher preparation at UI, support rural districts facing significant workforce shortages, and address both state and national needs for well-prepared teachers who choose to stay and thrive in rural schools.

Fixmer-Oraiz, Natalie, associate professor, Liberal Arts and Sciences-Communication Studies, 15 years of service, Spring 2028
Title: Just Family and the Politics of Kin
Prof. Fixmer-Oraiz will complete research and writing on two book projects. The first is a primer on care, currently under contract with *Agenda Press* and co-authored with Profs. Asha Bhandary and Lina Maria-Murillo. The second book is in the research and development stage. It focuses on contemporary families and community building amid ongoing crises to ask: What are

the modes of belonging that intimate care affords? How might these practices offer new templates for crafting just and caring communities? These two books are key to Prof. Fixmer-Oraiz's scholarly development and will provide new material for her instruction of students at the undergraduate and graduate level. Moreover, her scholarship on care and justice will help shape better practices for community building on a regional scale and beyond.

Fox, Claire F, professor, Liberal Arts and Sciences-English, 26 years of service, Spring 2028
Title: North American Museums and Heritage Sites Dedicated to Industrial Resource Extraction
Prof. Fox will write two chapters and carry out the remaining site research for her book, a study of North American heritage sites and museums dedicated to industrial resource extraction. Each chapter examines storytelling conventions at one or more heritage sites located in the Upper Midwest or Canadian Prairies, focusing on sites dedicated to the gas and clay industries in Alberta; lead and zinc mining in Wisconsin; and the shell button industry in Iowa. Other outcomes include new or revised syllabi, a scholarly presentation or article and a potential collaboration with a Midwestern heritage site or museum.

Friestad, Gregory K, associate professor, Liberal Arts and Sciences-Chemistry, 23 years of service, Spring 2028
Title: New Catalysts and Building Blocks for Drug Discovery and Improving Instructional Materials for the Organic Chemistry Laboratory
The Friestad Research Group discovers new ways to synthesize organic compounds of importance in agriculture and medicine, with an emphasis on improving efficiency, versatility, and environmental impact. Prof. Friestad's PDA will support the synthesis and structural elucidation of new metal catalysts for synthesis of chiral building blocks that are useful for agricultural and medicinal chemistry research and industrial development. Prof. Friestad will expand instructional materials for the organic chemistry laboratory, with a focus on building the repertoire of experiments available to instructors, and new experimental learning opportunities in polymer chemistry, an industrially important area in which undergraduate students often have little training.

G'sell, Brady, associate professor, Liberal Arts and Sciences-Anthropology, 9 years of service, Spring 2028
Title: Building Belonging: Newcomers Experiences of Relocation
Prof. G'sell will complete research on a new book project and participate in international collaborations that will enhance her teaching and research and will contribute to UI's international reputation. Work will take place in South Africa where Prof. G'sell will interview African women about their relocation to new areas and their efforts to create belonging. She will complete two journal articles on this new research. Prof. G'sell will also present at international conferences and will collaborate with colleagues at the University of the Witwatersrand and the University of Johannesburg in Johannesburg, South Africa and at the Urban Futures Centre in Durban, South Africa. In so doing, she will build networks to enhance research and learning opportunities for UI students. The research, writing and collaborative work undertaken are key to Prof. G'sell's scholarly development and will expand the reach of her scholarship and the resources for her teaching of undergraduate and graduate students.

Gavruseva, Elena, associate professor, Liberal Arts and Sciences-Language, Literature, Linguistics, and Cultures, 29 years of service, Fall 2027
Title: Advancing Research on Language and Learning: Experimental Studies on Grammar-Meaning Interface

Prof. Gavruseva will complete three single-authored, experimentally grounded research articles on how meaning, grammar, and conversational context interact in language structure, with a focus on learning English as a second language. The project will also initiate new data collection with language learners who have extensive immersion experience with English. The expected outcomes include three peer-reviewed publications and the initiation of new data collection, which will establish innovative research directions and provide empirical material for future articles and external funding proposals. The PDA will benefit Prof. Gavruseva's teaching by integrating current research into courses on language structure and acquisition. These courses expose students to real data, research methods and statistical modelling. It will contribute to broader understanding of how people learn and use language, with implications for education and communication in diverse communities.

Gooblar, David, associate professor, Liberal Arts and Sciences-English, 7 years of service, Fall 2027
Title: Teachers Are Not the Only Teachers
Teaching happens everywhere. Almost every field of human behavior requires people to help other people learn, develop and change. Prof. Gooblar's project will be a work of nonfiction, meant for both academics and a general readership, investigating the nature of great teaching by paying attention to the teaching that takes place outside of traditional educational settings. The book will profile therapists, coaches, ministers, entertainers, and politicians (among others) to find out how they think about teaching, how teaching figures into their jobs, and how they help the people around them learn, grow and succeed. Ultimately the book's aim is to discover both what college professors can learn from the hidden teaching that happens elsewhere, and what everyone can learn about the essential human act of teaching. The book will be a call to rethink the act of teaching to better help students succeed. For readers outside of the academy, whether they think of themselves as teachers or not, the book will highlight the central role teaching and learning play in a life well-lived.

Goodman, Shawn S, professor, Liberal Arts and Sciences-Communication Sciences & Disorders, 21 years of service, Spring 2028
Title: Multi-Level Auditory Feedback Systems
Feedback systems are observed across all biological sensory systems. While auditory feedback has been studied for many decades, there is still a lack of understanding about the role of this system in hearing. Previous work has focused on characterizing feedback effects at specific locations of the auditory pathway separately. Prof. Goodman's work will increase our understanding of the functional role of the hearing feedback system by measuring from the middle ear, inner ear and auditory nerve simultaneously. This will accelerate our understanding of feedback function in both normal and diseased/damaged ears. Prof. Goodman’s work will result in published journal articles, an R01 grant application submitted to the National Institutes of Health, and new material for an Auditory Anatomy and Physiology course. In the U.S., approximately 15% of adults (about 486,000 Iowans) report hearing loss, and a better understanding of the role of feedback mechanisms will help audiologists and ear doctors better diagnose and treat hearing difficulties.

Havens, Timothy J, professor, Liberal Arts and Sciences-Communication Studies, 24 years of service, Fall 2027
Title: Hollywood on the Danube
During his PDA, Prof. Havens will complete research and writing for a scholarly book on runaway American film and television production in Budapest, Hungary. The book will make a substantive intervention in his areas of expertise and contribute to designing or redesigning two

undergraduate and one graduate course at UI. Prof. Havens' project will be among the first to explore how streaming media platforms have enabled new organizational forms for film and television production everywhere. As such, his book will contribute to broader research into how digital platforms are reshaping contemporary work - a central social issue today.

Hayes, Joy, professor, Liberal Arts and Sciences-Communication Studies, 33 years of service, Spring 2028
Title: Martin Dies, Broadcast Media, and the Rise of Populist Conservatism, 1937-1956
This proposal investigates the political career and media use of Representative Martin Dies Jr. of Texas, who chaired the House Special Committee on Un-American Activities (1938-1944) and served in Congress (1931-1945; 1953-1959). Dies was a pivotal figure in challenging New Deal liberalism beginning in 1937 when he broke from Roosevelt over the Michigan sit-down strikes. By 1956 he had become a "Dixiecrat" and signatory to the Southern Manifesto – a declaration of resistance to federal desegregation efforts. Drawing on archival documents, radio speeches and press coverage, Hayes investigates the "media playbook" developed by Dies and its impact on conservative politics in the post-war period. She analyzes how Dies's focus on communism allowed him to weave together diverse strands of populist conservatism, including protection of private property, fear of unstable social hierarchies and an identity politics that pitted rural patriots against urban subversives. Prof. Hayes will incorporate her findings into courses on radio and electronic media, produce a book proposal and write two draft chapters.

Hollingworth, Andrew R, professor, Liberal Arts and Sciences-Psychological & Brain Sciences, 25 years of service, Fall 2027
Title: Establishing a New Research Program on Visual Working Memory and the Control of Eye Movements
Prof. Hollingworth will develop a new research program examining how visual working memory prepares the eye movement system for action. Recent findings suggest that maintaining information in working memory not only guides where the eyes move but also influences the timing of eye movements through changes in baseline motor readiness. Prof. Hollingworth will develop new experimental methods, refine computational models linking memory and motor readiness, and establish collaborations with neuroscience researchers. The project will generate publications and external grant proposals and will be integrated into undergraduate and graduate courses in perception, attention and memory. By advancing understanding of how working memory supports efficient action, this work has broad relevance for education, human performance, and technological development.

Jiang, Jiefeng, associate professor, Liberal Arts and Sciences-Psychological and Brain Sciences, 8 years of service, halftime for academic year 2027-28
Title: The Neurocognitive Mechanisms of Task Knowledge Representation
During his PDA, Prof. Jiang will work on two projects: 1) To renew his current NIH R01, which focuses on how the memories of different tasks are organized in the brain. This project will shed light on how humans can retain the knowledge of performing many different tasks while learning new ones quickly. 2) To write a new NIH R01 application on decoding the control flows in human task knowledge. Task knowledge usually includes a procedure specifying how the task is performed step by step. Inspired by computer science, all procedures are composed of three basic control flows: sequence, branch (e.g., if A, then B; if not A, then C) and repetitions. This project will identify the neural signatures for each control flow and provide foundations to understand neural representations of task procedure. Prof. Jiang expects to secure at least one NIH R01 grant from his work. The grant will allow Prof. Jiang to mentor postdoctoral scholars, graduate students and research assistants at UI.

Jiang, Peng, associate professor, Liberal Arts and Sciences-Computer Science, 8 years of service, Spring 2028
Title: Bridging Privacy and Performance: Optimizing Side-Network Architectures for Secure Large Language Model Fine-Tuning
Prof. Jiang will develop new methods for the privacy-preserving fine-tuning of large language models (LLMs). As institutions increasingly fine-tune LLMs on sensitive datasets, limited local computing power often forces them to send private data to external servers, risking confidentiality. Building on his expertise in high-performance computing, Jiang will focus on creating algorithms that inject calibrated noise into model layers to mask sensitive information, while also developing systems-level techniques to reduce the significant computational overhead that such privacy measures impose. Prof. Jiang will build a reproducible benchmark to quantify the trade-offs among accuracy, privacy and speed. This work is expected to result in a major grant proposal to NSF. Prof. Jiang will also develop a two-week instructional module and lab for his High-Performance and Parallel Computing course, providing UI students with cutting-edge skills in secure AI systems that are essential for Iowa's technology workforce.

Joseph, Maria L, clinical professor, Nursing-Faculty, 15 years of service, Spring 2028
Title: To Advance the National Consortium for Innovativeness in Healthcare
Prof. Joseph seeks to advance the Innovativeness Across Academia and Practice for Healthcare Progress Scale (IA-APHPS), a nationally recognized initiative developed at UI aimed at strengthening innovation across academic-practice partnerships and healthcare organizations. IA-APHPS offers leaders a practical way to intentionally enhance innovativeness within their settings. In 2024, the applicant expanded the College of Nursing Innovation Scholarly Interest Group into the National Consortium for Innovativeness in Healthcare, creating a national platform to support organizations in using the IA-APHPS, sharing insights and accelerating meaningful innovation and evidence-informed improvement. The growth, national demand and strategic potential of the Consortium now exceed what can be managed within regular faculty workload. Joseph will deepen data interpretation, share lessons learned through two publications, build momentum for future external funding and develop practical benchmarks that enable organizations to compare, learn, and improve across various healthcare settings.

Kadera, Kelly M, professor, Liberal Arts and Sciences-Political Science, 32 years of service, Spring 2028
Title: The Reemergence of Geopolitics: Regional (In)security Environments and Their Effects on International Politics
Prof. Kadera will leverage lessons from classic scholarship on geopolitics and from contemporary research on the consequences of external threats to a country's security to build a general theory of a country's regional security concerns and apply that theory to predict outcomes such as levels of foreign direct investment, democratic backsliding, human rights, and conflict-related sexual violence. She will write an application for an NSF grant to support this research and fund a graduate student. At least two journal article publications will result. Kadera will also develop lecture material for students in courses in international relations and for public audiences interested in international affairs. This material will help situate current events in historic geopolitical forces. She will begin to design an undergraduate course in geopolitics.

Koch, Julie M, professor, Education-Psychological & Quantitative Foundations, 5 years of service, Spring 2028
Title: Improving Undergraduate Counseling and Behavioral Health Education Through Course Redesign and Research on Professional Identity Development

Prof. Koch will focus on two areas during the PDA. First, she will improve instruction for three courses in the Counseling and Behavioral Health Services (CBHS) major: Intro to Counseling Psychology, Multicultural Counseling & Psychology, and Global Psychology. She will study the newest teaching practices, modes of delivery, and use of technology that engage today's undergraduate students. She will revise course content and materials and will update assignments and procedures for evaluating student learning. Second, she will research the impact of career-related assignments and professional identity development of students in these courses. Through this two-part approach, Prof. Koch will improve the quality of instruction in courses that are taken by UI students in a wide range of majors and will enhance students' ability to think critically about mental health in the U.S. and in a global society. Prof. Koch will also assess course effectiveness in preparing students for their future careers.

Landini, Gregory, professor, Liberal Arts and Sciences-Philosophy, 38 years of service, Fall 2027
Title: Revolutionary Mathematics and the Mind
Prof. Landini will write a book, *Revolutionary Mathematics and the Mind*. This will be done with a logic book: *An Introduction to cpLogic*. Comprehension principle logic ("cpLogic") is the discipline studying relational structures by studying universals independently of contingencies of their realization. Prof. Landini offered his *Principia Mathematica Redux* as a technical guide to Whitehead and Russell's *Principia Mathematica*, but it became clear that it is neither an introduction nor a work offering a philosophy of mind explaining how we know cpLogic. In Prof. Landini's book *Repairing Russell's 1913 Theory of Knowledge*, a theory of mind is suggested but it was constrained by the historical views of Russell. The new book will show the distinctiveness of cpLogic and offer a rejection of the popular conception that "logic" consists only in truth-tables and natural deduction. The books will be usable in undergraduate and graduate classes, promoting the idea that there is a universal logic and a theory of mind that grounds our understanding of the many so-called "rival logics" that have been developed today.

Lang, Joseph B, professor, Liberal Arts and Sciences-Statistics & Actuarial Sciences, 35 years of service, Spring 2028
Title: On Improved Communication of Uncertainty in Human and Machine Learning
Prof. Lang will address the problem of how to improve communication and understanding of uncertainty in statistical and probabilistic (human and machine) learning. Prof. Lang sets out to: clarify the sources of uncertainty and targets of interest by focusing on "processes" rather than the more conventional "populations"; develop a novel language of processes; lean into this language to improve understanding of simulation/computer-based learning; identify common pitfalls of conditional probability; and improve the identification of sources of randomness that are modeled in statistical inference. Each of these goals will be addressed in a way that can be easily communicated to the public and stakeholders who have little or no background in statistics. Tangible products will include scholarly articles, software and presentations. This research will be used to modernize UI courses, including an introductory business statistics course and advanced statistical inference courses.

Lingala, Sajan Goud, associate professor, Engineering-Biomedical Engineering, 9 years of service, Fall 2027
Title: Low-Field MRI for Airway and Pulmonary Imaging: Protocol Development and Pilot Studies
Prof. Lingala will advance new magnetic resonance imaging (MRI) methods that improve how clinicians study the lungs and upper airway during breathing and sleep. Current MRI systems are often noisy and sensitive to motion, limiting their ability to capture real-time physiological

processes such as airway collapse in sleep apnea. This project will focus on developing quieter, more motion-robust imaging approaches and adapting them for clinical use through collaborations with leading research groups and international partners. Prof. Lingala will produce new imaging protocols, pilot data and publications, while strengthening a campus-wide research program at UI. The work will introduce new course content and training opportunities for students. It will also support the development of accessible imaging technologies that can improve care for patients in Iowa and beyond, including in rural and resource-limited settings.

Lu, Jia, professor, Engineering-Mechanical Engineering, 26 years of service, Fall 2027
Title: Expanding Differentiable Finite Element Framework Into Untapped and Emerging Areas in Biomechanical Analysis and Design Optimization
Prof. Lu will further the development of the differential finite element method (DFEM). He will utilize DFEM as an essential numerical tool to develop an energetic theory and simulation method for soft tissue growth. He will thoroughly examine a critical component in design-optimization computation to deliver new, DFEM-based design-optimization workflows that are flexible and versatile. He will write a monograph on DFEM-based lecture notes for a graduate level course. The monograph will replace dated implementations with advanced differentiable framework while preserving the fundamental mechanics foundation, providing a treatment that is rooted in classical theory but aligned with modern computation technology. The monograph will be directly used in teaching, better preparing Iowa students for emerging technology and strengthening their competitiveness in the job market.

Meyer, Jessica R, associate professor, Liberal Arts and Sciences- Earth, Environment, and Sustainability, 9 years of service, Spring 2028
Title: Developing Efficient, Repeatable, and Transparent Coding Based Workflows to Support Novel Research into Groundwater System Responses
The water pressure in groundwater systems responds to many different stresses. Scientists who study groundwater systems use the changes in groundwater pressure through time to improve their understanding of aquifer structure and estimate aquifer properties important for simulating past and future groundwater flow. Investigating groundwater system responses at very short time scales at many different depths in the subsurface at a single location is a new area of research. Prof. Meyer and her students have collected these types of data; however, these data sets are typically large (> 10 million records) and complex. Prof. Meyer will focus on learning new skills in computer coding for herself and her students to fully analyze and interpret these data and launch a new line of research. Prof. Meyer will develop a new avenue for research and publishing, her students will have coding skills that are in demand by both academic and industry employers, and the insights generated will improve understanding of the structure and response of a critical bedrock aquifer in eastern Iowa and complex aquifers more generally.

Morris, Garrett, associate professor, Liberal Arts and Sciences-Computer Science, 7 years of service, Fall 2027
Title: A Core Type Theory for Row Types
Individual modern applications depend on reusing hundreds of other software components. To be correct, they must use these components according to their specifications. Prof. Morris and his research group have developed a high-level framework, called Rω, for describing how software components are structured and how they can be reused. This project will expand Rω applicability by identifying a minimal set of features necessary for Rω and implementation in many programming systems. Prof. Morris will involve graduate students in defining this set of features, implementing them in practical programming systems, and proving that they meet

correctness standards. The results will contribute to development of software applications and will generate multiple publications and a grant application to NSF.

Munoz, Luis, associate professor, Liberal Arts and Sciences-Spanish & Portuguese, 11 years of service, Fall 2027
Title: Lorca's Writing Process
Prof. Munoz will finish writing his book, which deals with the writing process of Lorca. The book is focused on how Lorca wrote his plays, poems and prose, using the manuscripts that are kept in the Centro García Lorca in Granada. He will analyze the writing process of Lorca, from the first notes until the final versions as he published them. Lorca is not only one of the best writers in Spanish language literature, but one of the writers with most influence on world literature, especially in the U.S. Lorca (1898-1936) had enormous impact on the generation of American poets who came of age during the cold war. The single-authored academic book that will result from Prof. Munoz's research will be published in a bilingual edition by the *Centro Federico García Lorca Press*, giving UI, as the Writing University, national and international visibility.

Nithyanand, Rishab, associate professor, Liberal Arts and Sciences-Computer Science, 9 years of service, Fall 2027
Title: Friction by Design: How Technology Shapes What We Do (and What We Can't Stop)
Prof. Nithyanand will develop a book that examines how modern technologies reshape human behavior by redistributing friction in everyday decisions. It argues that digital platforms make it easy for users to engage in impulsive or harmful actions, such as excessive scrolling or risky trading, while making it harder to act in their own long-term interests, such as protecting privacy or disengaging. The book synthesizes evidence from social media, finance and online interfaces to offer a clear framework for understanding these dynamics and proposes design and policy solutions to restore balance. The award will support research, writing and integration of these insights into courses on social computing and computer security, enriching student learning with real-world case studies and analytical tools. Prof. Nithyanand will strengthen UI's leadership in responsible technology research and education. His findings will inform public understanding, guide policymakers, and contribute to building safer, more accountable digital systems that benefit society broadly.

Prineas, John, professor, Liberal Arts and Sciences-Physics & Astronomy, 26 years of service, Fall 2027
Title: Quantum Photonic Networking with Deterministic Solid State Quantum Dot Emitters
Prof. Prineas will develop new approaches for connecting emerging quantum computing systems using optical technologies. He will travel to Connecticut to collaborate with researchers in Yale's Quantum Institute. This project will expand Prof. Prineas' expertise in photonic quantum networking and computing, which he will bring back to UI students through graduate advising, two graduate courses, and undergraduate research projects. Prof. Prineas's research will strengthen research infrastructure at UI, including the Materials Analysis, Testing and Fabrication facility and the Molecular Beam Epitaxy lab, which support users across campus and the state. By expanding expertise in quantum photonics, the project will also contribute to workforce development in an emerging technology area relevant to Iowa and national industries, including aerospace and defense partners such as Collins Aerospace and BAE Systems.

Rogers, Meghan, associate professor, Liberal Arts and Sciences-Sociology and Criminology, 7 years of service, Spring 2028
Title: Developing the Structural Capability Deficit Framework: Compound Structural Pressure, State Capacity, and Cross-National Variation in Violence and Incarceration

Prof. Rogers will advance research on the Structural Capability Deficit framework, a theory explaining why some countries experience higher levels of violence and incarceration than others. She will complete two peer-reviewed journal articles, begin a third manuscript and prepare a book proposal and external grant application. The project will strengthen undergraduate and graduate instruction at UI by incorporating new comparative research into courses on crime, inequality and public policy. By clarifying how compound structural pressures and state capacity shape public safety outcomes, this research will contribute to broader policy discussions relevant to Iowa and to societies facing challenges related to crime, inequality and institutional effectiveness.

Saha, Pranav K, professor, Engineering-Electrical & Computer Engineering, 21 years of service, halftime for academic year 2027-28
Title: AI Modeling of Multi-Pathway Mechanisms Underlying Disease Onset, Prognosis, and Clinical Outcomes
Prof. Saha aims to establish the foundation for a novel AI framework capable of integrating heterogeneous structured and unstructured data to uncover multi-pathway mechanisms underlying disease onset, prognosis and clinical outcomes. By combining respiratory mechanical biomarkers, functional, and clinical measures, and inspiratory/expiratory chest CT imaging, the model will provide deeper mechanistic insights and more robust prognostic analyses than conventional methods. The work includes designing and validating a multi-stream AI architecture and applying it to research in pulmonary and musculoskeletal diseases. Planned visits to leading international AI and medical imaging groups will further strengthen the framework's technical foundation and foster collaboration. The resulting innovation will enhance current research efforts, elevate scientific impact, and improve competitiveness for future funding.

Seamster, Louise, associate professor, Liberal Arts and Sciences-Sociology and Criminology, 8 years of service, Fall 2027
Title: Something in the Water: U.S. Urban Water Politics
Flint's water crisis has raised awareness about the vulnerability of water systems and related problems of water affordability, quality and access. However, more research is needed on the upstream causes of urban water infrastructure problems, especially in vulnerable communities. In a series of case studies, Prof. Seamster will provide an accessible overview of contemporary water politics in the U.S., drawing on fieldwork, interviews and archival research to explore mechanisms by which communities can have access to water inhibited or denied. This project will result in a book illuminating patterns with implications in understanding water access for communities, policy practitioners and academics. Her book will contribute to UI's reputation on water research and will provide crucial insight into resolving complex problems of water affordability, quality and access that will affect an increasing number of Americans in coming decades.

Stecopoulos, Harilaos, professor, Liberal Arts and Sciences-English, 26 years of service, Spring 2028
Title: The Heat of Modernity: American Modernism and the Energy Economy
Prof. Stecopoulos will research and write two chapters of his book, *The Heat of Modernity: American Modernism and the Energy Economy*. The book, already promised to *Oxford University Press*, is the first work to read modern American classics like T.S. Eliot's The Wasteland, F. Scott Fitzgerald's The Great Gatsby, and Richard Wright's Native Son in light of the nation's emergence as a leading fossil fuel economy. After examining Gertrude Stein's manuscripts at Yale's Beinecke Library, and William Faulkner's manuscripts at the University of

Virginia's Small Special Collection Library, Prof. Stecopoulos will generate a draft of a chapter on Stein's *The Making of Americans* and a draft of a chapter on Faulkner's *The Sound and the Fury* and *Sanctuary*. The resulting book will directly impact Prof. Stecopoulos' teaching, providing material for an undergraduate course on petroleum and modern literature and a new graduate course on energy and archives that will include trips to UI Special Collections and the UI Office of Sustainability. These courses will help generate student interest in the broader energy issues affecting the state of Iowa.

Strand, Kendra D, associate professor, Liberal Arts and Sciences-Language, Literature, Linguistics, and Cultures, 11 years of service, Spring 2028
Title: From Words to Paper
Prof. Strand will examine how papermaking techniques practiced in Japan today can reveal previously overlooked political networks between the imperial court and the provinces in medieval Japan. Her project, *From Words to Paper*, traces the role of paper in recording group poetry to reveal why interface across provincial and courtly social groups was valued, and how such reciprocal relationships were leveraged for political success. She will conduct fieldwork and archival research in Japan, building on her previous study of travel poetry, to show how material goods from the provinces were central to poetic production at court and beyond. She will incorporate her findings in experiential learning activities using material culture in the classroom. She will disseminate her research through presentations at academic conferences and, ultimately, through a second monograph. Prof. Strand is also committed to sharing her research through local and regional community outreach and works to deepen ties between Iowa and Japan by increasing understanding of cultural and artistic practices that strengthen social networks from the international to the community level.

Vamanu, Iulian, associate professor, Graduate-Library & Information Science, 13 years of service, Spring 2028
Title: Reimagining Library & Information Science (LIS) Education: Evidence-Based Pedagogy for Human-Centered Practice
Prof. Vamanu will complete a book manuscript*, Reimagining LIS Education: Evidence-Based Pedagogy for Human-Centered Practice*, aimed at publication with *Bloomsbury Libraries Unlimited*. The book, which draws on his Institute of Museum and Library Services-funded national study of U.S. public libraries as resilience hubs, will equip LIS educators with a research-based pedagogical framework for training library professionals who combine technical expertise with a commitment to community service. Prof. Vamanu's manuscript will strengthen graduate instruction at UI and integrate its evidence-based materials directly into courses. The book will improve how the next generation of library professionals in the state and across the U.S. is trained to serve vulnerable communities and navigate crises.

Wang, Chao, associate professor, Engineering-Industrial Engineering, 8 years of service, Spring 2028
Title: Artificial Intelligence and Data Analytics for Next-Generation Smart Manufacturing Systems
Prof. Wang will advance research on artificial intelligence-driven manufacturing systems that improve reliability, quality, and efficiency in modern production. Prof. Wang will focus on developing new data analytics and machine learning methods for monitoring complex manufacturing processes using limited or heterogeneous data. The work will produce open-source tools, scholarly publications, and new teaching materials that integrate real industrial case studies into engineering education. These outcomes will enhance training for students in industrial engineering and data science at UI while strengthening the university's leadership in

smart manufacturing research. The project will also benefit the state of Iowa by supporting advanced manufacturing industries through improved data-driven decision-making, workforce development, and technology innovation.

Williams, Florence, associate professor, Liberal Arts and Sciences-Chemistry, 8 years of service, Fall 2027
Title: Cutting Edge Methods Enabling Translational Science from Fundamental Discovery
The Williams lab develops new types of bond-breaking reactivity using simple boron Lewis acid reagents. These reactions, because they involve low toxicity byproducts and commercially available reagents, have wide-ranging potential to address modern chemical challenges, such as the sourcing of chemicals from agricultural feedstocks and efficient plastic recycling. Prof. Williams will gain expertise in the areas of polymer chemistry and in state-of-the-art mechanistic and kinetic analyses. This training will take place in the labs of Prof. Megan Fieser, University of Southern California, and Prof. Jason Hein, University of British Columbia, BC, Canada. While these topics are quite different, they are both critical to the advancement of current research in the Williams lab and for enabling translation of fundamental reactions into scalable applications. It is expected that Prof. Williams' work will result in higher impact publications, increased scientific collaboration, and increased capabilities for the development of patentable and industrially relevant science.

Winn, Bryon S, professor, Liberal Arts and Sciences-Theatre Arts, 30 years of service, Spring 2028
Title: Event Design
Prof. Winn will conduct on-site research on current trends in event design and develop a new course titled Event Design which will support students in Theatre Arts as well as the students enrolled in the Event Management Certificate in the School of Journalism and Mass Communication. He will leverage the existing content and experiences from his current Entertainment Design course by expanding a three-week design assignment into a full 16-week course. Prof. Winn will benefit students by expanding their potential employment opportunities in a growing field in Iowa, the U.S., and around the globe. He will create a companion course in the spring semester for the Entertainment Design course taught every fall, which also serves as an elective for the Event Management Certificate.

Yale, Elizabeth E, associate professor, Liberal Arts and Sciences-History, 6 years of service, Spring 2028
Title: Paper Science: Women and Knowledge-Craft in British Households, 1650-1900
Prof. Yale will complete a draft of her book manuscript, *Paper Science: Women and Knowledge-Craft in British Households*, 1650-1900, for submission for peer review to a leading university press. This book will articulate women's foundational roles in organizing and communicating scientific knowledge. Through close analysis of scientific material texts, including correspondence, printed books and manuscripts, an approach Prof. Yale developed in her previous scholarship, *Paper Science* will argue that women helped lay the foundation of today's modern scientific information infrastructures and labor systems, first as family members in homes, and then, following the industrial revolution, as employees in increasingly professionalized settings. *Paper Science* will illuminate the deep historical roots of gendered labor systems in the sciences and shed light on the earlier history of a now global, largely digital, scientific communication infrastructure. Prof. Yale will share the research results in undergraduate and graduate courses on the history of science and medicine; women, gender and the family; and the history of the book in Europe and Britain.

Yockey, Joseph W, professor, Law-Faculty, 17 years of service, Fall 2027
Title: AI Governance and Human Collaboration in Mission-Driven and Business Institutions
Prof. Yockey will study how artificial intelligence (AI) affects institutions that depend on human judgment and collaboration. He will address two related settings: mission-driven organizations like universities and nonprofits, and traditional for-profit business entities. Prof. Yockey will write articles on AI governance in both settings, focusing on fiduciary duty, mission drift, and the loss of human judgment when leaders rely too heavily on automated systems. He will also develop a coauthored article arguing that corporate law provides a legal framework for prioritizing human collaboration, not just for organizing capital, a point that speaks directly to concerns that AI may displace workers and erode judgment, trust, and shared purpose at work. Prof. Yockey will produce publishable scholarship and new teaching materials, directly benefiting students preparing for careers in an AI-influenced legal landscape. The project will offer practical guidance on using AI responsibly while preserving accountability and the essential role of human collaboration.

Zajacz, Rita, associate professor, Liberal Arts and Sciences-Communication Studies, 19 years of service, Fall 2027
Title: The Development of Darknet Markets + TikTok in the Context of U.S.-China Geopolitical Rivalry
Prof. Zajacz will revise two articles for publication and work through the order in which it would be best to advance her two projects. Prof. Zajacz will review and organize the research she has conducted on four of the seven chapters of a book on the development of darknet markets for the sale of illegal drugs and revise a conference paper for publication on the logic of cryptocurrency mixers. This project will inform two of her classes: Privacy and Anonymity on the Internet and The Digital Economy, which deal with the intersection of the internet and civil liberties and the internet and contemporary capitalism. Prof. Zajacz will revise her conference paper on the geopolitical significance of the sale of TikTok that would help her apply her analytical framework for "network control" to the problems and solutions in relation to data, the algorithm, ownership and content that policymakers considered and arrived at between 2020 and 2026. This research will inform her advanced class, Communication, Technology and National Security, to help students think about the struggle for control over the internet in the context of U.S.-China rivalry.

University of Northern Iowa

Wen, Ai Associate Professor, Biology, 13 Years of Service, Spring Semester, Faculty
Title: Integration of vegetation and pollinator ecology in an intensive agricultural ecosystem—synthesizing collected data and new techniques
The original Tallgrass Prairie habitat of the U.S. Midwest has largely disappeared, with less than 0.1% remaining in Iowa, prompting significant restoration efforts through programs such as the USDA Conservation Reserve Program (CRP), which supports Iowa's agricultural economy and benefits thousands of landowners. Since 2018, undergraduate and graduate biology students at UNI have conducted long-term monitoring of Pollinator Habitat Initiative sites in northeast Iowa and contributed to a nationwide effort assessing vegetation communities across multiple CRP practices. Building on this work, the research team seeks to develop a comprehensive synthesis paper integrating data on plants, insects, agricultural policy and management strategies to better understand biological interactions within agricultural landscapes and inform future conservation policy. Related wild bee research has also led to a collaborative effort to create Iowa's first comprehensive wild bee species database, which will provide publicly accessible information on bee biology and county-level distributions while reinforcing UNI's leadership in Midwest pollinator conservation. Additionally, PDA funding will support the development of this online resource, pursuit of external grant opportunities, and expansion of a newly launched insect-tracking project through long-term monitoring equipment and student research support, enabling the use of innovative technologies to improve understanding of beneficial insect populations.

Giese, Scott Professor, Applied Engineering, 31 Years of Service, Spring Semester, Faculty
Title: Learning Metal Casting Through Casting Simulations
The proposed project will develop an integrated, application-focused manuscript that addresses the evolving educational needs of both the metal casting industry and academia by combining foundational foundry technology principles with modern metal casting simulation techniques. Drawing on more than thirty years of teaching and collaborative research at UNI, the manuscript will bridge the gap between theoretical knowledge and practical application, addressing a recognized deficiency in existing educational resources that often separate foundry topics and present simulation tools primarily for advanced audiences. The publication will emphasize project-based and experiential learning through the integration of casting design, molding, melting, solidification, quality control and simulation technologies, including advanced visualization tools such as MagmaSoft®, to model real-world foundry operations. Organized into chapters covering key metals and casting methods and developed in collaboration with an industry advisory committee, the manuscript will align with industry standards and multidisciplinary workforce requirements. The resulting publication will support academic institutions, technical organizations, and industry partners by advancing competency-based education and professional development while equipping future engineers and technologists with the digital literacy, problem-solving skills and practical knowledge needed to succeed in modern manufacturing environments.