

Contact: Rachel Boon

PROFESSIONAL DEVELOPMENT ASSIGNMENT REPORTS FOR FY2022

Action Requested: Receive the professional development assignment reports submitted by the Regent universities for FY2022.

Executive Summary: Board Policy 2.1.R (a-e) directs the institutions to submit a yearly report of the completed professional development assignments, pursuant to the 2011 Iowa Act, Chapter 122 (HF 45).

In November 2020, the Board approved 72 professional development assignments for 2021-22. At that time no PDA requests were requested from UNI as the institution grappled with the pandemic, and both ISU and SUI saw decreased requests.

This report reflects one UNI faculty PDA that was deferred in 2020. Sixteen deferred PDAs at SUI were taken in FY22. In addition at SUI, five PDAs that were approved in either FY21 or FY22 were declined, and six were deferred. At ISU there were 18 PDAs that had previously been deferred. In addition, two approved for this year were declined and three were deferred to a future year.

The estimated cost of the professional development assignment program was \$373,819 for 2021-22. With the addition of deferred PDAs, cost increased to \$447,543. Work done in by the faculty on these PDAs has already resulted in \$66.97m in grants and external funding. Other grant proposals submitted as a result of this work have a cumulative value near \$200m. Much of this grant money supports graduate students who engage with faculty on this work, funds associated travel, provides salary replacement for the researchers, support costs for research subjects, and is used to purchase equipment or other materials, often from Iowa businesses.

Other results include articles published or in review, many presentations, dozens of book chapters or entire books in development or submitted, creative works completed or performed, grants applications submitted or obtained, students mentored, patents applied for or obtained, and many courses updated or new courses developed.

A brief description of each professional development assignment completed in FY22 is available in this report, including information about the value added to the students, university, and state from the assignments. This report aligns the Board of Regents Strategic Plan emphasis on excellence in teaching and research, economic development, and positive impact on the state of Iowa.

University of Northern Iowa

ANDERSON, JOHN R., Associate Professor, Management, 9 Years of Service, AY 2020-2021
(approved by BOR in 2019 -- postponed due to COVID -- revised date: AY 2021-2022)

Title: Reciprocal Subcontracting by SMEs: Sustaining Global Factories in Uncertain Times

This project studied contract manufacturers operating at the lowest value-added position of global supply chains. More specifically, multiple interviews were conducted with factory owners and managers in the industrial city of Dongguan, China. The industry studied was plastics. This study discovered the mechanism used by contract manufacturers to stay economically viable and cost competitive despite external pressure from decreasing demand and increased labor, rent and input costs. The mechanism used is relationship-based where firms within a loose network of businesses will engage in reciprocal subcontracting in order to keep their production running as close to 100% of capacity as possible. Typically, factories either have to choose to have high capacity utilization levels and low customer service levels, or vice-versa. In the case of contract manufacturers in the study's sample, businesses were able to maintain both high capacity utilization and customer service levels by taking and giving subcontracted work on an ongoing basis. Understanding this unique business model innovation has led to this work being short-listed for the 'Best Paper' award at the prestigious Academy of Management Conference. The paper is currently in the revise and resubmit stage for a leading journal in the researcher's academic field: *Journal of International Business Studies*. The project has also facilitated working with one of the top Management scholars, Peter Buckley, and will lead to future papers and collaborations, raising the University of Northern Iowa's research profile.

University of Iowa

BARRAGÁN, ELOY, associate professor, CLAS-Dance, 17 years of service, Fall 2021

Title: UNIONES; On the Stage, On the Street, On the Screen

Prof. Barragán is developing a new method to teach students to be prepared for a variety of artistic situations, including those we are facing during the current pandemic. The project UNIONES, unfortunately, was canceled. Prof. Barragán adapted to maintain the goals of the PDA. In the fall of 2021, he choreographed Humanos via ZOOM for South Dakota Ballet. As a Guest Artist he choreographed "LOS CAMINANTES" and taught at the Compañía de Danza Antoinette, Puebla México. He re-staged "Y POR TI..." and re-choreographed "HUMANOS" for La Compañía de Danza del Estado de México. Prof. Barragán also created a ScreenDance with Apoc Apoc Dance Co. He will introduce the experiences from this research to his students in Choreography II by introducing video recordings as archival and self-evaluative; for Choreography III/Intro to ScreenDance he will introduce video recording composition in a narrative or montage form. The final outcome of the PDA is to bring these skills and concepts to the undergraduate and graduate students at the UI.

BECK, MARGARET, associate professor, CLAS-Anthropology, 15 years of service, Fall 2021

Title: Making Sacred Things: Red Pottery and Pipestone in Native North America

Red denotes the sacred over thousands of years in Native North America. Prof. Beck's project addressed red pigment in the U.S. midcontinent, investigating potential raw materials such as pipestone, ochre and vermilion and how they reflect ritual, migration and trade in the archaeological record. The outcomes include one nearly complete journal article, one draft journal article, and a conference presentation as well as new material for several undergraduate courses.

BHANDARY, ASHA L, associate professor, CLAS-Philosophy, 10 years of service, halftime for calendar year 2021

Title: Being at Home: Cultural Conflict, Status Hierarchies, and the Possibility of Equality

Prof. Bhandary began her new monograph of philosophy titled "Being at Home." In this new book of political philosophy, which spans multicultural political theory, psychology, public health, feminist theory and critical race theory, she argues that the value of feeling at home in the world has been overlooked by theories of justice. Drawing upon studies from psychology and public health that show that stress is damaging to individual health, she will show that the need to feel at home can illuminate sources of cultural conflict, is at stake in instances of microaggressions, and is implicated in resistance to feminist change. During the PDA, she presented her work in multiple conference venues, wrote a full journal article, and published parts of her new thinking about freedom and diversity in journal symposia on related books. In addition, she spoke about her first book, Freedom to Care, in response to multiple invitations from philosophy departments, scholars in political science and law, and the public. She also completed the development of a philosophical video game, which is being used nationally, and which she uses as a pedagogical tool in her Bioethics TILE course.

BLEHER, FRAUKE, professor, CLAS-Mathematics, 22 years of service, halftime for academic year 2021-2022

Title: Cryptographic Multilinear Maps and Arithmetic Geometry

Prof. Bleher used her PDA to conduct research in arithmetic geometry with the goal of constructing cryptographic multilinear maps. Such constructions would have far-reaching consequences to cryptography. Prof. Bleher's work focused on cup products and Massey products. This work was done with two other collaborators, one in the U.S. and the other in France. It resulted in one research article, and the beginning of several new projects. One potentially new approach to cryptography was found, which should result in a new grant

application by Prof. Bleher together with several other researchers during the academic year 2022-2023. Additionally, Prof. Bleher was able to finish two other research papers, which were submitted for publication. Furthermore, this research helped her find new material for an advanced graduate course, which she will give in the fall of 2022.

BLOOM, STEPHEN G, professor, CLAS-Journalism & Mass Communications, 29 years of service, Fall 2021

Title: The Brazil Herald: The Story of the CIA, Hunter S. Thompson, a Fearless Reporter, and a Legion of Kick-Ass Adventurers

Prof. Bloom researched archives, conducted interviews, and wrote a manuscript to form the basis of his forthcoming book, The Brazil Herald: The Strange Saga of the CIA, Hunter S. Thompson, a Fearless Reporter, and a Legion of Kick-Ass Adventurers. Prof. Bloom traveled to the Library of Congress to view hundreds of newspapers, starting with the first edition (February 1, 1946) of the Brazil Herald, an English-language daily based in Rio de Janeiro that, over its 40-year existence, employed scores of editors and reporters who would go on to become American journalists employed at the highest levels of U.S. media. The now-defunct newspaper was modeled after the Paris-based International Herald Tribune. In addition, Prof. Bloom accessed source material from presidential libraries and personal archives, including documents from former Brazil Herald publisher, Bill Williamson, a University of Iowa alumnus. In addition to the creation of previously untold journalism history, Prof. Bloom's research and writing augmented his teaching skills, as his expertise is a sub-field in nonfiction writing known as narrative journalism.

BRANCH, LORI A, associate professor, CLAS-English, 22 years of service, Fall 2021

Title: Postsecular Reason

Prof. Branch completed the book introduction and prospectus for Postsecular Reason and is preparing to submit it for publication. During 4 weeks' residence in the UK she workshopped these materials with scholars at Lancaster University and lectured on the book by invitation at Cambridge, St. Andrews, and Lancaster. This research enhances the classes on literature, religion and postsecular studies that Prof. Branch teaches to UI undergraduate, honors and graduate students. The book will further establish her as an expert in fields on which she regularly lectures in Asia, Europe and the US. It will strengthen her ability to secure grants, which have included two six-figure awards from the NEH. The PDA and the resulting book will benefit society by increasing understanding about the history of religion and secularism, decreasing religious and secular violence, and overcoming the perception of opposition between religious and secular forces in culture, advancing richer, postsecular modes of human flourishing.

CARGILL, ROBERT R, associate professor, CLAS-Classics, 11 years of service, Fall 2021

Title: Missing Messiah Israel 2020

In the spring of 2021, Prof. Cargill was awarded a grant from the President's Office, overseen by the Chief Innovation Officer, Jon Darsee, and a supervisory group including CLAS Deans Sara Sanders and Josh Weiner and Associate Provost Lois Geist, to establish a popular, online publication focused on biblical studies and archaeology. The website uses clear and concise language that can be understood easily by any layperson interested in the Bible and the archaeology of the Holy Land. Prof. Cargill would use his established public persona to engage in public-facing scholarship that directly informed taxpayers in language they can understand. In addition to educating the public, the goal is for the site to become a self-sustaining, revenue generating entity for CLAS and the University. The original content published by the site can be reused (leveraged) in existing UI classes, making the learning experience for Iowa students all the more vibrant and interactive. The site also serves to market the university brand while

recruiting students to the Dept. of Classics. He also consulted for and appeared in a 6-episode CNN series (Jerusalem: City of Faith and Fury).

CREEKMUR, COREY, associate professor, CLAS-Cinematic Arts, 21 years of service, Spring 2022

Title: An Anatomy of the American Comic Book

Prof. Creekmur conducted focused research and writing on his book project, Anatomy of the American Comic Book, the first full study of the comic book as a publication format and unique material object, and thus a unique contribution to the rapidly growing field of comics studies. This project is well underway and has been supplemented with a recent Arts and Humanities Initiative grant submitted and awarded during the fellowship period. This grant will allow him to visit and work in five major archives of comics in university research libraries. Portions of the research for this project have also been presented at an academic conference and are being prepared for publication as a separate essay derived from the larger book manuscript. Research for this project also significantly informs an awarded Mellon Sawyer Seminar on Racial Reckoning Through Comics that Prof. Creekmur will co-lead across 2022-23, and will be employed in an undergraduate honors class on racial representation in comics for the English department being taught in Fall 2022. A future course in collaboration with the Center for the Book is also an anticipated result.

D'AGATA, JOHN-PHILIP, professor, CLAS-English, 17 years of service, Fall 2021

Title: Translating Plutarch's Letter of Love

Prof. D'Agata completed a new book titled Reflections on a Passing Resemblance. This book differs from the project that he had proposed to work on during his PDA, which would have involved a lot of international travel. Due to the restrictions of the global pandemic, Prof. D'Agata decided to focus instead on a writing project based on his experience of watching famous Broadway actors portray him as a character on stage in a play entitled The Lifespan of a Fact. The "John" that appears in the play is reviled, which inspires Prof. D'Agata to reflect on the nature of persona in both art and life. Given American society's interest in the new possibilities that have recently opened regarding how one "identifies" oneself—whether that be in terms of gender, sex, race, class, etc.—Prof. D'Agata plans to use his new understanding of the malleable nature of the self to encourage his writing students to expand their own understandings of themselves in their writing projects.

DALY, SCOTT R, associate professor, CLAS-Chemistry, 8 years of service, Spring 2022

Title: DOE-Funded Experiments and Training with Transuranic Elements Neptunium and Plutonium

The aim of Prof. Daly's PDA was to complete experiments with bulk quantities of neptunium, a highly radioactive element generated in nuclear reactors. These experiments were part of a broader research effort aimed at determining how changes in chemical bonding are implicated in effective separation of radioactive elements found in nuclear waste (a longstanding question in nuclear science). Several neptunium complexes were successfully prepared using a new glovebox purchased with support from a US Department of Energy grant. The experiments facilitated student training in the safe handling and analysis of neptunium (and other radioactive elements) and established new capabilities needed to develop the next generation of the US nuclear workforce at UI. They also afforded important preliminary results needed to support several federal grant proposals to be submitted in the upcoming academic year. In addition to establishing a new research thrust with neptunium, Prof. Daly and his team published/submitted 7 peer-reviewed research manuscripts, 2 book chapters, and 2 proposals to round out a highly productive PDA period.

DARCY, ISABEL K, associate professor, CLAS-Mathematics, 19 years of service, Fall 2021

Title: Tangle Tabulation, Data Visualization, and Developing Educational Resources for Mathematical Writing

A 1-string tangle can be created using a single string, knotting that string, and fixing the endpoints. Similarly, an n-string tangle is created by tangling n strings and fixing the endpoints. Tangles are used to model DNA bound by protein. Prof. Darcy and her student Ethan Rooke improved existing code and developed new software for creating a data base of tangles. Once the prototype is finished, Prof. Darcy in collaboration with her colleagues will submit a workforce/infrastructure grant to tabulate tangles for use in knot theory and its applications. Several undergraduate level research projects are included in the proposal, which also includes the development of teaching material to be used by multiple universities with students collaborating across institutions. In a separate project, Prof. Darcy and Mr. Rooke analyzed software for visualizing data. She is organizing a workshop aimed at graduate students on this topic to be held at UI this May.

DESTRUEL, EMILIE, associate professor, CLAS-French & Italian, 9 years of service, Fall 2021

Title: Scales and Scalarity: Probability and Processing of Scalar Inferences in Native French and L2 English Speakers

Prof. Destruel completed research on pragmatic inferencing adopting empirical tasks designed over the year prior to the PDA. The project included collecting data on native French speakers for two different phenomena; (1) interpretation of clefted interrogative forms compared and (2) interpretation and processing of a variety of scalar expressions (e.g., some, or), verbs (e.g., try, succeed) and quantifiers (e.g., few, none). She also examined how the same pragmatic inferencing in these two phenomena is achieved and processed in second language (L2) learners. Prof. Destruel collected empirical data on this population to test whether the same factors influence inferencing in a second language. Prof. Destruel is using this research to inform her teaching. She uses data collected in her FREN:4007 class this Spring to expose students to current issues and methods in pragmatics that are part of a lively debate in the field. This PDA benefits the state of Iowa and society by presenting research on how learning a second language works. The outcomes are a journal publication, submissions to international conferences and revisions to class materials.

DURHAM, MEENAKSHI G, professor, CLAS-Journalism & Mass Communications, 22 years of service, Spring 2022

Title: Vulnerable Lives: Understanding Vulnerability Now

During the PDA period, Prof. Durham conducted research and drafted chapters for her book on vulnerability; presented a paper on this topic at a refereed panel at an international conference (Paris, France) that is the basis for a book chapter in progress; completed and submitted a refereed academic journal article; prepared and delivered an invited lecture on her PDA topic for Humboldt University in Berlin; and prepared a presentation for a national webinar on children and media. She also had a short story accepted for publication, and she worked on a Guggenheim grant application based on the PDA project. The publications and presentations above will inform her teaching in areas such as media ethics and diversity and gender in the media; she is slated to teach undergraduate courses on these topics in AY 2022-23. This research and these projects will also support her work with PhD students conducting scholarship in these areas and the development of future graduate seminars.

ELIAS, STELLA B, professor, Law-Faculty, 10 years of service, Spring 2022

Title: Immigration Lawmaking in the Era of Trump and Brexit

Prof. Elias completed research comparing immigration law and policy at times of crisis in the USA, UK and Europe. Based in the UK for this PDA, Prof. Elias was able to collaborate with lawyers and scholars from many different nations. The results of her research will be published in her co-

authored book, *The Oxford Handbook of Comparative Immigration Law* (forthcoming Oxford University Press 2023), and in a separate law review article. In April 2022, Prof. Elias and her two co-authors drew upon this research to submit six research briefs to the United Nations Network on Migration, which they then presented at UN Headquarters in New York at the International Migration Review Forum in May 2022. In August 2022, the research was presented at the Sokol Colloquium on International Law, a two-day workshop for the Handbook at the University of Virginia. This research will also be incorporated into Prof. Elias's teaching materials for her Comparative Law, Immigration Law & Policy, and Foundations of International Law courses, and will shape a mini symposium on "Crisis and Immigration Law" held in January 2023 at Jesus College, Oxford University, during Iowa Law's London Law Program.

FISHER PAGE, DARIA M, clinical associate professor, Law-Faculty, 5 years of service, Fall 2021
Title: History and Pedagogy of Visual Advocacy in Social Justice Movements and Movement Lawyering

Prof. Fisher Page's project examines the use of images and design in social change lawyering and pedagogies of visual rhetoric for lawyers. Legal education centers on oral and written advocacy; yet modern lawyers must understand and use design and images to be effective advocates. Prof. Fisher Page began the project in Fall 2021 as a Fellow at the Obermann Center. She first focused on creating an inventory of social movement-related images and a bibliography of relevant texts in diverse fields from semiotics to social work. She began an article for a law review, which she presented at the Obermann Fellows seminar, and a syllabus for a course on visual advocacy. Through her research, Prof. Fisher Page has refined her practice and teaching of visual advocacy, leading to more effective representation of clients. Prof. Fisher Page's new course introduces visual advocacy to more students, enhancing their persuasion skills and giving them new tools. Beyond the clinic, she has built relationships with Iowa scholars in other disciplines, academics at other universities, and advocates who view design as an issue of accessibility. She will present her work at two upcoming conferences.

FIXMER-ORAZI, NATALIE, associate professor, CLAS-Communication Studies, 10 years of service, Spring 2022

Title: New Grammars for Reproductive Justice

Prof. Fixmer-Oraiz focused on two primary projects for the duration of her PDA: 1) completing her current book project, *New Grammars for Reproductive Justice*, with Prof. Sharon Yam at the University of Kentucky; and 2) launching a new collaboration on multispecies care with Jamie Brooks Robertson, an independent scholar based in London. Her first collaboration examines gender in the context of pregnancy, childbirth and family formation, drawing on various public discourses and extensive interview data to understand how feminist health care providers, advocates, and LGBTQ families are navigating gendered challenges and constraints in the process of creating family. The book is intended for a wide audience comprised of academics, reproductive health care providers, and advocates across the country. This project is also central to Prof. Fixmer-Oraiz's dossier for promotion and will provide new material for her instruction of students at the undergraduate and graduate level. Her new collaboration on multispecies care is in the earliest stages of development, and charts intersections among reproductive justice, climate justice and interspecies care.

FLATTE, MICHAEL E, professor, CLAS-Physics & Astronomy, 27 years of service, Fall 2021

Title: Theory of Nanoscale Interactions Between Magnetic Atoms for Application to Quantum Computers

Because of this PDA, in collaboration with University College London (UCL) researchers, Prof. Flatté developed a theoretical model for a magnetic bismuth atom in silicon, implanted in the silicon using ion implantation. The results compared very favorably with experimental

measurements using scanning tunneling microscopy at UCL; results are in preparation for publication. Prof. Flatté also developed a theoretical description of spin-polarized scanning tunneling microscopy through a spin-1 defect, including the effect of decoherence, in a silicon-containing material, and submitted this to a journal. Three grant applications were submitted or are in the process of submission as a result of the work performed during this PDA. This work helps position Iowa to benefit from the coming international revolution in quantum technologies. Prof. Flatté also developed additional pieces of a quantum curriculum suitable to be incorporated into the national quantum curriculum developed by the QuSTEAM consortium, and for use in his course at UI on “Advanced Condensed Matter”.

FOX, CLAIRE F, professor, CLAS-English, 21 years of service, halftime for calendar year 2021

Title: Contemporary Art and Heritage Placemaking in the Americas

During the PDA award period, Prof. Fox completed a co-edited book, an art exhibition catalog essay, and a book review, and she conducted research toward her monograph about contemporary art and heritage places. In addition, a book chapter and three book reviews that were in various stages of the publication process appeared during the award period. She presented her research at two professional meetings and a public symposium sponsored by the San Francisco Museum of Modern Art. She prepared two new courses: a graduate seminar on the Latina/o/x Midwest for the English PhD program (Spring 2022) and a Community Engaged Course for the Latina/o/x Studies minor (Fall 2022). She developed a project narrative and plan of research for her monograph with the intention of applying for grants in the near future.

FRIESTAD, GREGORY K, associate professor, CLAS-Chemistry, 17 years of service, Spring 2022

Title: Collaborative Malaria Drug Discovery and Strengthening Organic Chemistry Research and Teaching

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. The PDA for Prof. Friestad in Spring 2022 supported the strengthening of a new collaborative program with Prof. Debopam Chakrabarti of the University of Central Florida in developing new malaria drugs based on recently discovered polyol natural products with antiplasmodial activity. The PDA also supported enhancement of ongoing research in radical-polar crossover reactions and asymmetric catalysis to prepare valuable building blocks for new medicines. The results from this program provide new, efficient ways to build organic compounds for materials science, agricultural chemistry and drug discovery. The PDA also facilitated the last stages of review and publication of a new organic chemistry laboratory textbook that is under publishing contract. The work facilitated by this PDA will bring external recognition to UI Chemistry and produce talented BS and PhD chemists that can strengthen the Iowa workforce and support economic development in the state.

FUMERTON, RICHARD, professor, CLAS-Philosophy, 48 years of service, Fall 2021

Title: The Philosophy of Philosophy

In the period covered by the award Prof. Fumerton worked on two manuscripts. He completed a manuscript Foundationalism for Cambridge's Elements in Philosophy series. The manuscript is now at press and is expected to be published in March 2022. The manuscript explains and defends a specific view about the structure of knowledge and justified belief. The themes in this book work their way into almost all of Prof. Fumerton's courses in epistemology (both undergraduate and graduate). For most of the semester, however, Fumerton worked on a draft of his book The Philosophy of Philosophy. He has a relatively polished draft of six chapters, with another three in progress. The book is under contract with Routledge, and Fumerton expects a final draft to be completed by the end of the Fall 2022 semester. He is currently teaching a seminar

that deals with many of the topics discussed in the book, and the feedback from advanced undergraduates and graduate students will be invaluable in revising the manuscript.

GILSTER, MEGAN E, associate professor, CLAS-Social Work, 10 years of service, Fall 2021

Title: Does Providing Permanent Supportive Housing to Address Chronic Homelessness Change the Community?

An estimated 100,000 Americans experience chronic homelessness (i.e., have a disability and have been homeless for at least 12 months). Permanent Supportive Housing (PSH) improves outcomes among those experiencing chronic homelessness. However, we know little about the larger social benefit of PSH. During this PDA, Prof. Gilster used administrative data to examine whether calls to police about homelessness, police interactions with people experiencing homelessness, and arrests of people experiencing homelessness changed between the years before PSH began housing individuals experiencing chronic homelessness and the three years after. Prof. Gilster produced two draft partial manuscripts on this project, developed collaborations, and identified three funding sources for the project. When the project is completed, Prof. Gilster and collaborators will present findings at an interdisciplinary conference and to local advocacy organizations. Prof. Gilster also drafted a case study to use in classroom teaching in the School of Social Work to prepare future social workers in Iowa to engage with evidence-based practice and to serve this vulnerable population.

GOLZ, SABINE I, associate professor, CLAS-German, 35 years of service, Fall 2021

Title: The Subconscious is in the Construction: Gender, Mimesis, and Poetic Architecture in Walter Benjamin's Arcades Essays

The PDA enabled Prof. Gözl to spend Fall 2021 focusing on research and writing. She completed a new 50-page chapter for her book "The Subconscious is in the Construction: Gender, Mimesis, and Poetic Architecture in Walter Benjamin's Arcades Essays." This research is also the topic of Prof. Gözl's current seminar, where she will share her new chapter with her students. She also submitted a book proposal for an edited volume on "Retranslation and the Politics of Perception" (with Adrienne K. H. Rose) and worked with contributors on their articles, preparing the manuscript for submission to the publisher in April 2022. Finally, Prof. Gözl also spent time working on her current documentary film project (produced and directed together with Oleg Timofeyev). She filmed a final interview for the film and incorporated the new footage into what is now a near-complete draft.

HARKNESS, SARAH K, associate professor, CLAS-Sociology and Criminology, 11 years of service, Fall 2021

Title: Gendered Negotiations: How Gender Stereotypes Affect Negotiation Outcomes and Trust Building

Prof. Harkness used this PDA to further her research on how gender and trust affect negotiations. While prior literature has noted the existence of a gap in bargaining outcomes between men and women, little is known about the cause of this gap and when men or women may be disadvantaged. Prof. Harkness utilized the PDA to program a new experimental protocol to identify underlying causes of this gap to better understand how and when gender processes may lead to different bargaining outcomes. This work is being incorporated into her undergraduate and graduate courses on gender, and she has a grant proposal in progress to fund future data collection. This work has practical ramifications beyond academia, as negotiations are a key aspect of our lives with lingering and potentially compounding effects on our finances, job prospects, and overall well-being. Gaining insight on how people can improve these outcomes may therefore benefit us all. In addition to the focal PDA project, Prof. Harkness also now has a book chapter in press, submitted three journal articles for publication, and advanced another three in progress manuscripts.

HAVENS, TIMOTHY J, professor, CLAS-Communication Studies, 19 years of service, halftime for academic year 2021-2022

Title: Television Gets Smart

During his PDA, Prof. Havens primarily conducted research for a scholarly volume examining the film and television production services industry in Budapest, Hungary. He conducted 32 interviews with the owners of production companies, as well as numerous professionals working at every level of the industry. These interviews form the core of the original research for the book. Prof. Havens wrote and submitted to peer-reviewed journals two scholarly articles based on this research that were written during the PDA and presented the research at an academic conference. In addition, he wrote and submitted two book chapters on unrelated topics to two edited academic anthologies, and substantially revised another chapter for a new edition of a previously published anthology. This research will benefit students at the university in two main ways: first, Prof. Havens will integrate the insights of his research on transnational media production into his undergraduate and graduate courses on the media industries; second, Prof. Havens will work to develop a summer study abroad course on transnational media production in Budapest alongside the industry professionals he met during his PDA.

HEIMER, KAREN, professor, CLAS-Sociology and Criminology, 31 years of service, halftime for academic year 2021-2022

Title: Gender, Race, Crime and Justice: Studies of Violent Victimization and Incarceration

Prof. Heimer published a series of journal articles on gender, race, criminal involvement and criminal punishment during her PDA. This included a series of interrelated papers on crime, delinquency, victimization and imprisonment. The work also included progress on a book project on violence against women that uses over 40 years of data drawn from the National Crime Victimization Survey. Prof. Heimer also began work on a new submission for external funding on justice system-involved women in the U.S., and developed another project on vulnerable girls and justice-involvement in the United Kingdom. She also devoted time to revising CRIM:4420, Criminal Punishment, which she is teaching in Fall 2022. Prof. Heimer's research during the PDA contributes important knowledge to a variety of topics related to crime and justice, including our understanding of women's experiences with violent victimization, women's experiences in prison and patterns of change over time in women's and men's incarceration in the United States. Her work has closely attended to race and ethnic differences in victimization and imprisonment.

JOHNSON, DAVID C, associate professor, Education-Teaching & Learning, 9 years of service, Spring 2022

Title: Educational Equity for Linguistic Minorities in Iowa Schools: An Examination of Bilingual Education Teacher Preparation

Prof. Johnson completed some of the tasks originally outlined in the project prospectus, including investigating the policies and practices in teacher education programs that prepare pre-service teachers to work in bilingual education classrooms as well as the goal of improving teacher training in our ESL Endorsement and Dual Language Education specialization. However, other projects were also pursued. Multiple publications were completed, including a book chapter on language policy and planning for Wiley, a journal article on Chinese language policy was published, and a book for Palgrave was completed. Furthermore, Prof. Johnson submitted a five-year Title III National Professional Development grant for the U.S. Department of Education. This grant would help fund graduate assistantships and facilitate continued improvement of the ESL Endorsement and Dual Language Specialization within the Teacher Education program. As always, the goal of Prof. Johnson's work is educational equity for multilingual students, who have been historically marginalized in Iowa schools, even as their numbers rapidly increase.

KINSER, RYAN D, associate professor, CLAS-Mathematics, 9 years of service, Fall 2021

Title: Bridging Theory and Practice: Applications of Quiver Representations in Data Science

This PDA allowed Prof. Kinser to apply his expertise in theoretical mathematics to applications in data science, a field which has impacted areas such as healthcare, transportation/travel logistics, manufacturing and finance/banking to name a few. This was accomplished through a visit to the University of Missouri to work with the Algebraic and Probabilistic Methods in Data Recovery group, along with follow up virtual meetings. These visits were complemented by the organization of an interdisciplinary research seminar at UI on this topic. This PDA benefited students at Iowa because the seminar introduced them to a newly developing research area at the interface of pure mathematics and applications in data science, and new research projects resulted that will prepare them well for careers in business, industry, government and academia. The PDA benefited the state of Iowa by contributing to STEM workforce development for careers in these areas and opening new funding sources for research and training in Iowa. The PDA benefited society more broadly by developing new applications for theoretical mathematics in data recovery.

KLEINSCHMIT, JULIA, clinical associate professor, CLAS-Social Work, 23 years of service, Spring 2022

Title: Evaluation of Online Part-Time MSW Program

Prof. Kleinschmit led creation of a new MSW curriculum assessment strategy. In the past, the School of Social Work has used a complicated method of somewhat limited use to students. Kleinschmit led creation of a promising student-led portfolio process the School will continue to develop. Outcomes - Portfolio assessment: 1) researched and created; 2) piloted in AY 2021-2022; and 3) continues in second piloting wave for AY 2022-2023. The PDA resulted in an assessment requiring students to curate portfolios of examples of their learning over time and to write integrative essays reflecting how their knowledge has developed, citing assignments and learning opportunities. They address: demonstrating ethical and professional behavior; engaging diversity and difference in practice; advancing human rights and social, economic, and environmental justice; engaging in practice-informed research and research-informed practice; engaging in policy practice; engaging, assessing, intervening and evaluating practice with individuals, families, groups, organizations and communities. The PDA serves the state because it ensures that social workers practice competently in all of these areas.

LANDINI, GREGORY, professor, CLAS-Philosophy, 33 years of service, Spring 2022

Title: Principia Mathematica Redux

Principia Mathematica Redux opening chapters were written during this PDA, explaining the unique Logicism of Principia Mathematica, and its many interpretations. The book features Prof. Landini's newest discoveries. There are: "In Praise of Littlewood's Praise: Frege Infinity versus Dedekind Infinity in Principia Mathematica," and "Principia's *72.64 Proof of the Principle of Abstraction," and "A Note on Principia's *38 on Operations" and "Gödel's Diagonal Function does Not exist without Numbers." In addition, there is the paper "Stipulations Missing Axioms in Frege's Grundgesetze Der Arithmetic" (HPL, 2022). These research outcomes alter the history books, advance education and teaching of logic, and attract new students to study at UI.

LANG, JOSEPH B, professor, CLAS-Statistics & Actuarial Science, 30 years of service, Spring 2022

Title: Fiducial Statistical Learning without Pre-Data Information

During the PDA period, Prof. Lang completed work on a novel approach to statistical inference. This piece will appear in a forthcoming book on contemporary methods for statistical analysis. The ideas put forth in that work can be applied to large data and will lead to improved prediction methods. Iowa's insurance industry could benefit from these ideas. Prof. Lang, jointly with a former student, completed a piece on improved estimation for count data, along with a publicly

available software package. The companion computing package will be useful to data scientists and decision makers in Iowa and globally. Prof. Lang also co-authored a paper that will appear in a leading criminology journal. He submitted a paper that was tentatively accepted in a quantitative education journal; this paper will be of interest to educators here at UI, especially those who teach large-enrollment courses. He also wrote four more papers on foundational topics in statistics. Finally, Prof. Lang made significant progress on an online textbook for an introductory course in business statistics. This work will directly benefit students at UI.

LAURIAN, LUCIE ALICE C, professor, Graduate-Urban & Regional Planning, 18 years of service, Spring 2022

Title: City Wisdom, Balancing Acts in Urban Planning

Prof. Laurian conducted research in preparation for a book manuscript titled "A Future History of Paris: Reclaiming Utopia Walking the Streets from 54BC to 2600AD." The book is a speculative nonfiction, anchoring an exploration of sustainable futures in a rich social and personal history of place. Prof. Laurian presents the book as a one-day guided tour of Paris, introducing history and personal stories as they present themselves in space, and seamlessly introducing visions of the future. The goal of the book is to renew with optimistic and pragmatic images of good urban futures, much needed in the Anthropocene. Prof. Laurian conducted the necessary research at the Library of Paris History, at the Carnavalet Museum of Paris History, at the Pavillon de l'Arsenal, and by studying and solidifying the route of the featured walk. She outlined the whole book and completed the preface and the first six chapters. She has two more chapters and the conclusions to write. Manuscript completion is scheduled for the end of Spring 2023.

MERINO, ANA, professor, CLAS-Spanish & Portuguese, 13 years of service, Spring 2022

Title: Amigo (Friend): A Novel

During her PDA, Prof. Merino completed and published her novel "Amigo" at Destino publishing house. She finished the last version of her manuscript. The book was published in the middle of February, so she went on tour to promote her novel. "Amigo" is a three-part novel, commencing with the character of a Mexican poet in her early 50s who travels to Spain in October 2019. The trip is helping the poet distance herself from an emotional breakdown and to refocus her life on the possibilities of new research on the family archive of Joaquín Amigo. Joaquín Amigo was a catholic philosopher and very close friend of poet Federico García Lorca. Both were killed by opposing forces at the start of the Spanish Civil War. Merino also finished a new book of poems entitled "Salvamento de hormigas" that was published in April. As a creative writing professor her experience writing fiction, doing research with authentic materials and writing poetry is key to her creative writing courses at the graduate and undergraduate level, especially at UI, a writing university. Her poetry and novels are known nationally and internationally among the Spanish speaking world with several awards.

MIDTROD, TOM ARNE, associate professor, CLAS-History, 13 years of service, Spring 2022

Title: Native Americans as Refugees in Early America

Prof. Midtrod worked on a book manuscript examining the experiences of Native American refugees in the late seventeenth and early eighteenth centuries. During this period, thousands of Native people were displaced from their homelands in the American Northeast, and the movements of these people reverberated throughout the region, creating political, diplomatic, economic, and military challenges for Indians and Europeans alike. The study of these refugee movements is important for understanding early American history and may also contribute to our understanding of the experiences of refugees in general, a topic of great relevance to the modern world. Prof. Midtrod's study is intended to be published as a book by a major academic press. During the PDA, he also completed a journal article on a topic closely related to this study.

MILLER, DANIEL W, associate professor, CLAS-Art & Art History, 8 years of service, Spring 2022

Title: Intersection of Public Art with Electronic Media

For the majority of the semester Prof. Miller researched, designed and fabricated two major projects. Additionally, Prof. Miller submitted numerous applications for Public Art projects and participated in exhibitions. Miller completed fabrication of a public art commission for Iowa Neurological Institute and he is midway through fabrication of an interactive art installation titled Mutual Light. Recently, Prof. Miller was notified that he is one of three finalists for a 70K public art project in San Marcos, Texas. The experience from his research this semester will translate directly into the classroom where he can share his experience, insight and new skills gained through these projects. Prof. Miller's art projects will attract critical acclaim raising the profile and reputation of artwork created at UI. These projects benefit the community and the state by increasing awareness of issues and ideas through art, become enduring focal points for people to gather around within the communities where they are located.

MUÑOZ, LUIS, associate professor, CLAS-Spanish & Portuguese, 6 years of service, Spring 2022

Title: Antonio Machado: Approaches to a Poetics of Negation

Prof. Muñoz completed the fifth and sixth chapter of his book about Antonio Machado, the last two chapters he needed to write in order to complete the first full draft of his new interpretation of the poetry by the legendary Spanish poet. This book will benefit his teaching at UI because he will use many of these materials and thoughts in his undergraduate course dedicated to Machado. Prof. Muñoz has also written a full first draft of a new book of poems. The process of writing this book will benefit his teaching of the Poetry Workshop in the MFA in Spanish Creative Writing Program. Both books open new perspectives to the meaning of poetry as a social value and as a profound innovative tradition itself.

OLIVEIRA, SUELY P, professor, CLAS-Computer Science, 24 years of service, Spring 2022

Title: Developing Machine Learning Methods in Education and Biology

The PDA was used to develop machine learning methods suitable for identifying antibiotic resistant bacteria and identifying characteristics of mental health. Prof. Oliveira's work on identifying antibiotic resistant bacteria resulted in a new method for identifying suitable features of a bacteria's genome for resistance to a particular antibiotic. This was based on the XGBoost method for gradient boosting of collections of decision trees. This enables rapid identification of resistant bacteria via whole genome sequencing, which can be performed in about an hour instead of 24 to 48 hours for a traditional test. The work on characteristics of mental health via machine learning and psychological inventory questionnaires achieved partial success, but ambiguity in how questions in the inventory relate to underlying issues makes the results hard to interpret. Teaching contribution includes new development for the Data Structures course she currently teaches and plans for a Machine Learning research and applications class in the future.

PARK, ALYSSA, associate professor, CLAS-History, 11 years of service, Spring 2022

Title: Homeward: Korean Repatriation and the Unresolved Politics of Colonization and War

Prof. Park used the PDA to make significant research progress on her book project, Homeward: Korean Repatriation, Refugees, and the Unresolved Politics of Colonization and War. The book examines the history of Korean repatriation and the refugee crisis that emerged after World War II. It sheds light on the native Korean experience of the postwar period and how U.S., Soviet, and Korean institutions handled the influx of millions of refugees who returned to the peninsula from abroad or fled south from the Soviet-occupied north. The book contributes to the global history of refugees and the postwar history of Korea and broader East Asia. Her work has also resulted in the completion of a draft article for a peer-reviewed journal. Prof. Park's research will directly

inform her new class on the Korean War and will be integrated into her undergraduate courses on Korean and East Asian history. Her research benefits the larger public by providing the historical context for cross-border migrations, forced movements, and U.S. interventions in foreign countries that are of significant interest to citizens and policy experts today.

PIGGE, CHRIS, associate professor, CLAS-Chemistry, 17 years of service, Spring 2022

Title: New Synthetic Methods for Construction of Complex Organic Small Molecules and Natural Products

Prof. Pigge used his PDA to perform research investigating new methods to manipulate heterocyclic ring systems in construction of important bioactive molecules and synthetic building blocks. Experimentally convenient methods to convert widely available nitrogen heterocycles into structurally more sophisticated compounds under mild conditions were developed. This is significant because nitrogen heterocycles are encountered in the majority of small-molecule bioactive compounds and pharmaceuticals. Accordingly, preparative methods that can be broadly applied for the synthesis and elaboration of nitrogen heterocycles are crucially important to advance the fields of medicinal and biomolecular chemistry. Work performed during the PDA provides the foundation for new external funding applications that will be submitted in the coming months. The PDA provided for enhanced mentorship of graduate and undergraduate research assistants, and results of this work will also be incorporated into graduate-level organic chemistry courses. One peer-reviewed journal article encompassing a portion of this work has appeared in press and a second article is currently under review.

ROCHA, RENE R, professor, CLAS-Political Science, 16 years of service, Fall 2021

Title: Trends in and Consequences of Interior Immigration Enforcement

Prof. Rocha researched the patterns of immigration enforcement within the interior of the United States. He combined information from multiple sources to search for discrepancies and improve the overall quality of publicly available data. He then determined how enforcement patterns have evolved over the past ten years and considered the political and social effects of immigration enforcement. Specifically, he studied how enforcement-oriented policies have changed migration patterns among Mexican immigrants. His conclusions differ substantially from previously published research, suggesting the effect of enforcement on immigrant communities is fluid. The results of this research will inform discourse on immigration policy and reform in Iowa and across the country. The project also gave students the opportunity to become involved in research.

RODRIGUEZ RODRIGUEZ, ANA M, associate professor, CLAS-Spanish & Portuguese, 14 years of service, Fall 2021

Title: Re-Encountering Islam in the Philippines: Race and Religion at the Threshold of Spain's Modernity

Prof. Rodriguez wrote 2 chapters of her next book on Spanish colonization of the Philippine islands. The award allowed her to travel to Spain to complete archival research for this project and gave her the necessary time to finish those chapters. She worked on revisions for 3 different articles that have already been published or will be in the next few months. Additionally, she worked on an online textbook for the Advanced Spanish Speaking and Writing course offered regularly by Department of Spanish and Portuguese. This textbook will be accessible to students for free, starting in fall 2022, which will save all future students who take the course around \$150.

SCHERER, MICHELLE M, professor, Engineering-Civil-Environmental Engineering, 24 years of service, Fall 2021

Title: Communicating Science: Lessons from Art, Theatre, and Storytelling

Prof. Scherer launched a new research direction for her group focused on addressing lead in drinking water. She pulled together a team of engineers, biostatisticians and pediatricians during

her PDA to write a proposal on lead in drinking water and submitted it to the 2021 Healthy Homes Technical Studies Program in the U.S. Department of Housing and Urban Development (HUD). Healthy homes require healthy water and healthy water is essential for healthy children. A potent and irreversible neurotoxin, lead is an invisible and under-detected drinking water contaminant. Eliminating sources of lead is vital to eliminating childhood lead poisoning, which is one of HUD's core missions. Currently, environmental lead hazard assessments almost exclusively target lead-based paint, soil and dust; water, unlike these other sources, is meant to be ingested. The external award will be used to develop tools and implement practices to assess drinking water as a potential contributor of lead exposure in Iowa and beyond.

SHAW, SCOTT K, associate professor, CLAS-Chemistry, 10 years of service, Fall 2021

Title: Expanding Capabilities in Chemical Surface Science

Prof. Shaw's plans for this professional development assignment were changed considerably due to the COVID-19 pandemic. Original plans included visits to collaborators in Australia, Japan and Canada to learn about new tools for characterizing chemical systems important for solving problems in environmental and energy sciences. During these visits Prof. Shaw would have 1) received training in atomic force microscopy to characterize novel deep-eutectic solvents 2) studied and learned to build and operate cross polarization microscope to monitor how molecules organize at surfaces, and 3) visited collaborators at Japan's National Institute of Advanced Industrial Science and Technology (AIST) to complete work from a graduate-student internship with the AIST collaborators which was cut short due to the pandemic in 2020. Instead, Prof. Shaw worked mostly from Iowa and completed several manuscripts, publications, grant applications and curricular developments for his courses. He was able to travel to the University of Arizona and learned how to fabricate ultra-micro electrodes there.

SKIFF, FREDERICK N, professor, CLAS-Physics & Astronomy, 24 years of service, Spring 2022

Title: Laser Spectroscopic Studies of Plasma Transport

The PDA was very productive both in preparing for Prof. Skiff's newly funded project involving trapping calcium ions in a dipolar magnetic trap and in exploring two new fields: plasma medicine and plasma agriculture. This interdisciplinary work requires biologists, but also plasma physicists. The opportunity to explore these new fields came up at the start of the PDA. These fields promise to be very important for economic activity in the State of Iowa. Prof. Skiff participated in an interdisciplinary project to determine how plasma activated water kills bacteria. Though active in Europe and Asia there is little research activity in these fields in the US - none in Iowa. Prof. Skiff also participated (through Zoom) in the FESAC Congressional advisory committee, Physics and Astronomy external departmental review, weekly meetings with three graduate students and faculty colleagues on two on-going funded research projects and a third funded project which started immediately after the PDA. All these activities support graduate and undergraduate education through future seminars, course material and student research projects.

SONKA, MILAN, professor, Engineering-Electrical-Computer Engineering, 27 years of service, Spring 2022

Title: Artificial Intelligence (AI) in Interdisciplinary Research

Prof. Sonka's PDA focused on strengthening the role of artificial intelligence (AI) and machine learning (ML) research at UI. Prof. Sonka concentrated on and achieved success in three main goals contributing to advancement of research and bringing new extramural funding: 1) studying foundational new approaches and tools for AI/ML in diverse research areas; 2) actively participating in AI/ML interdisciplinary projects; and 3) extending the role of AI/ML in UI's portfolio of externally-funded research. Tangible results can already be seen in a number of funded and submitted research proposals, publications, and bringing a societally important project for highly automated medical image analysis for adaptive radiation therapy of cancer to a level of industrial-

partner collaboration readiness. State of Iowa and the society in general will benefit from fulfilling the above goals, solidifying the role of the UI as a strong research university in AI and nurturing the ground for increased levels of federally funded AI research at the UI with positive impact on Iowa's economic development.

SRINIVASAN, PADMINI, professor, CLAS-Computer Science, 33 years of service, Spring 2022
Title: Strengthening Offensive Text Detectors and Exploring Linguistic Style in Text
Prof. Srinivasan completed several papers during her PDA semester along three research directions. The first is about adversarial attacks on machine learning classifiers. Prof. Srinivasan and her group designed defense strategies that outperformed state-of-the-art defenses. The paper was accepted and presented at a top tier computational linguistics conference (NAACL, 22). A second paper, also in this direction, focusing on authorship detection was accepted in another top tier computational linguistics conference (ACL, 22). In the second research direction on bias Prof. Srinivasan and her group have a paper adopting a community perspective to bias detection accepted at ACL, 22. A second paper will be submitted next month. In the third direction on linguistic style a paper submitted to COLING, 22 - another top tier conference, has received strong positive reviews, the final decision is awaited. Finally, Prof. Srinivasan has outlined a proposal that will be submitted later this year. Students are key participants and have made all conference presentations. Topics researched with this PDA are of substantial importance to society given current technologies.

THOMAS, DOWNING A, professor, CLAS-French & Italian, 31 years of service, Fall 2021
Title: Anchoring the Self: Judgment, Feeling, and Commonality in Early-Modern France
Prof. Thomas devoted his PDA, to research and writing for a book-length study focused on how writers during the early-modern period, prior to Immanuel Kant, used their art to explore the ways in which relations between persons are fraught and often falter, and, conversely, how these social connections might be repaired so that they are preserved and flourish. Using a variety of literary platforms, earlier writers explored connections and conflicts between sensation and judgment, reason and imagination, feeling and truth, and the self and others; and they developed models of personal and social engagement that continue to have value, particularly in today's troubled world of polarization and identity politics. Prof. Thomas focused his work on the first section of the book, undertaking new research and drafting a chapter in that section, in view of a book-length publication. In addition to research outcomes, Prof. Thomas is sharing the results of his research in a graduate class during Spring 2022 and will do so again in Fall 2022. He will also distill elements from his research for inclusion in undergraduate courses in future academic years.

VOSS, MICHELLE W, associate professor, CLAS-Psychological Brain Sciences, 10 years of service, Fall 2021
Title: Targeting the Brain to Change Physical Activity Behaviors: Developing a Health Neuroscience Approach
Prof. Voss extended the scope of her research and teaching towards developing a health and behavioral neuroscience framework for addressing physical inactivity. Through readings and visiting colleagues, she built a firmer foundation of health behavior theory. She developed a new grant with colleagues at UI, which resulted in a funded pilot project for a collaborative grant and team-building towards a Center grant. She also developed a new multi-site NIH/NIA grant with colleagues at Northeastern and Brandeis University focused on experimentally targeting cognitive control to increase physical activity adherence during middle-age. Results from this research will benefit society by informing how to reverse trends of rising physical inactivity to prevent age-related chronic diseases. The theoretical and methodological knowledge developed was also integrated into an updated and revised Health and Behavioral Sciences graduate class, which serves as a core class for students training to bring their behavioral and neural science training

into collaborations with physicians and physician-scientists at UIHC and beyond in their future scientific and clinical careers.

WILLIS, ELIZABETH, professor, CLAS-Creative Writing, 7 years of service, Spring 2022

Title: Liontaming in America

Prof. Willis conducted research, drafted new poems, assembled a first working draft of the full-length book proposed in her application for a PDA, and delivered that manuscript to her editor. Research included extensive historical and archival research. The work accomplished over the course of the PDA will directly contribute to Prof. Willis's work in the classroom, especially her poetry workshops and mentorship of students whose poetry involves historical research. This work enhanced her planning for a revised seminar on book composition (previously taught under the title "A Pattern Language") and a new seminar on "Documentary Poetics." The work also expanded her practice of longer writing forms, which will inform her supervision of graduate theses and her mentorship of students and alumni writing their own manuscripts. As a contribution to American culture and the state of Iowa, her writing seeks to heighten our collective understanding of the complex cultural and ecological histories we inherit; to cultivate tolerance as it asks questions about what we do and don't know; and to affirm acts of truth-seeking beyond partisan histories.

WU, YU-HSIANG, associate professor, CLAS-Communication Sciences & Disorders, 10 years of service, Spring 2022

Title: Cost-effective Hearing Aid Delivery Models for Older Adults with Dementia and Hearing Loss

Prof. Wu was involved in the development of two NIH grant proposals. The first grant was an NIH P50 grant. The goal of the grant is to better understand the influence of important factors, such as cognitive processes, on communication abilities among cochlear implant users, and to understand the effect of these abilities on socialization in real-world settings and its influence on psychosocial well-being. The second grant was an NIH R01 grant. This grant seeks to understand the complex relationship between age-related hearing loss, cognition and hearing intervention. Both proposals were submitted in June 2022. The PDA has significantly helped Prof. Wu focus on grant proposal development and acquiring new knowledge and skills beyond his hearing science expertise to other fields (e.g., cochlear implants and cognition sciences). This will improve Prof. Wu's teaching and ultimately contribute to his long-term research goal--to improve hearing intervention outcomes and quality of life for adults with hearing loss.

ZAJACZ, RITA, associate professor, CLAS-Communication Studies, 14 years of service, halftime for academic year 2021-2022

Title: Standards and Sovereignty: Reorienting the Telecommunications Infrastructure in Post-socialist Hungary, 1989-1999 + Dark Markets: A Challenge to State Power

Prof. Zajacz worked on three chapters of her book on the development of darknet markets for the sale of illegal goods. Prof. Zajacz seeks to understand the intellectual foundations of using the black market to facilitate freedom from state power, the technological evolution of darknet markets as well as the challenges such markets pose to state power. She presented part of a chapter at the annual International Communication Association conference in Paris, France. This research enriches Prof. Zajacz's undergraduate class, Privacy and Anonymity on the Internet, as well as her graduate classes, Surveillance and Privacy on the Internet and Internet Histories. Prof. Zajacz also did research for a study comparing the types of leverage Western powers have available in cutting Russia off from the global financial system and from the global Internet. This study applies Prof. Zajacz's analytical framework, developed in her first book, to current Western sanctions imposed on the Russian Federation and will strengthen her undergraduate course, Communication, Technology and National Security. Both projects may inform policy development.

ZALOZNAYA, MARINA, associate professor, CLAS-Sociology and Criminology, 10 years of service, Spring 2022

Title: Women, Informal Networks, and Everyday Resistance in Putin's Russia

During the PDA, Prof. Zaloznaya carried out data collection for her next solo-authored book about everyday political resistance of urban Russian women. She began analyzing these data and drafting book chapters to be submitted to a top academic press by the end of AY22/23. Based on this research, she developed a new course entitled Gender & Politics Under Authoritarianism (POLI: 3450: 0001), in which UI students will consider how gender-related issues including reproductive rights, social welfare, and domestic violence are contested by citizens and the state in the absence of political freedoms. Prof. Zaloznaya also co-edited a programmatic volume on sociological approaches to studying corruption. The research team is currently in talks with Cambridge University Press regarding publication. Lastly, she completed several journal articles based on analyses of national representative surveys on corruption engagement, political behavior, and egocentric networks of ordinary citizens in Russia and China. Prof. Zaloznaya's work contributes to the international profile of UI and helps build and strengthen connections between Iowans and citizens of other countries.

ZHOU, XUN, associate professor, Business-Business Analytics, 8 years of service, halftime for academic year 2021-2022

Title: Spatial Trajectory Data Mining for Urban Business Intelligence

During his PDA, Prof. Zhou had collaborations with researchers on the topic of spatio-temporal data mining for urban and business intelligence applications, e.g., traffic accident forecasting and traveler/driver behavior analysis. Through the collaboration, he developed a set of novel techniques for traffic accident forecasting on heterogeneous spatiotemporal data. His algorithms have been tested on data collected from the state of Iowa and significantly improved the performance of the state-of-the-art methods with higher prediction accuracy. These techniques could potentially assist transportation and public safety decision-making in the state of Iowa. These activities have led to three journal papers, six conference papers, and a book chapter, where one of the papers won the Best Paper Award (only one each year) of the IEEE International Conference on Data Mining (ICDM'21). He also has two journal paper and two conference papers currently under review. These research outcomes are being incorporated into undergraduate and graduate courses as project topics and lecture examples to help students learn recent advances in data science and analytics.

Iowa State University

ALIPOUR, ALICE, Associate Professor, Civil, Construction, and Environmental Engineering, 7 years of service, 2021-2022 academic year

Title: Development of New Data-Assisted Resilience Indices for Civil Infrastructure Systems
Professor Alipour visited the Swiss Federal Institute of Technology to study data-assisted decision support systems that protect civil infrastructure from flooding and extreme wind events. Results included eight invited presentations, 14 research papers and reports, three book chapters, \$900,000 in new external funding, and an additional \$2.3M in pending proposals.

CARTER, WILLIAM HOWARD, Associate Professor, World Languages and Cultures, 11 years of service, spring 2022

Title: Devilish Details: Goethe and the Art of Administration

Professor Carter completed a book project detailing how Goethe's business acumen contributed to his literary works, including research on the history of insurance and fire prevention in Germany. This work, linking literary classics with history and human behavior, will be applied to Carter's recruitment and retention of students, and further positions him as a preeminent Goethe scholar.

CIARDO, GIANFRANCO, Professor, Computer Science, 8 years of service, 2021-2022 academic year

Title: Improving, Generalizing, and Widening the Applicability of BDDs

Professor Ciardo's assignment focused on using binary decision diagrams to address numerical problems, further improving the efficiency of algorithms required to use decision diagrams in practical applications. Results included four publications and conference presentations, additional course materials for students, and \$700,000 in National Science Foundation funding.

COSTABILE KELLY, KRISTI, Associate Professor, Psychology, 12 years of service, spring 2022

Title: Illness Narratives, Causal Beliefs, and Health Outcomes

Professor Costabile examined the narratives and beliefs of individuals coping with chronic serious illness, with particular attention given to those diagnosed with cancer. Results included multiple research studies, the development of an Iowa State course on close relationships, six journal articles and conference presentations, and \$550,000 in funding proposals.

CREDE, MARCUS, Associate Professor, Psychology, 8 years of service, fall 2021

Title: Decision-Making Competence: Developing an Individual-Difference Based Approach to Assessment and Measurement

Professor Crede focused their assignment on the link between PTSD symptoms in combat-deployed military personnel and adverse childhood experiences, and to critically examine previous research in this field. Results included the redesign of a course on meta-analysis, and the completion of three journal articles.

DORIUS, CASSANDRA, Associate Professor, Human Development & Family Studies, 9 years of service, spring 2022

Title: Unspecified

Due to a delay caused by the pandemic, Professor Dorius modified her original proposal to focus on solving the most pressing challenges of Iowa communities, including substance abuse. These efforts led to three technical reports, 10 invited talks to community decision makers, five stakeholder engagement workshops, and five awarded research grants totaling more than \$5.3 million.

DORIUS, SHAWN, Associate Professor, Sociology, 9 years of service, spring 2022

Title: Measuring and Monitoring Public Perceptions of the U.S., China, and the US-China Trade War

Professor Dorius used the assignment to examine the statistical models of social epidemiology, with special attention to alcohol outlet density measurement, in the context of community health and wellbeing. Results included three technical reports, five invited presentations, three stakeholder workshops, and three external funding awards totaling \$109,000.

FENG, HUI, Associate Professor, Marketing, 6 years of service, spring 2022

Title: Hui Feng's FPDA Plan, Scholarly Research and Achievements

Professor Feng visited Indiana University's Johnson Center for Entrepreneurship and Innovation to develop new insights and research in entrepreneurial marketing. Outcomes include the preparation and submission of six journal articles, an invited lecture, three conference presentations, and additional opportunities for Iowa State doctoral students.

FONTAINE, LISA MARIE, Associate Professor, Graphic Design, 35 years of service, fall 2021

Title: Bridging the Pedagogical Gap between Form and Message in Graphic Design

Professor Fontaine conducted a series of experiments during her assignment to test and demonstrate a more effective way to teach the foundational graphic design concepts of form and concept. Results include three illustrated storybooks and the development of a comprehensive instructional resource for students learning introductory design in Iowa's community colleges.

GABIAM, NELL MILAGNY, Associate Professor, World Languages and Cultures and Political Science, 11 years of service, fall 2021

Title: We Have Now Lost Two Homelands: Palestinians Displaced by the War in Syria

Professor Gabiam's project focused on Palestinians who have been rendered refugees as a result of the war in Syria and assessed the significance of Europe's new status as a major land of asylum for Syro-Palestinians. Outcomes of this work included 70 hours of interviews for a documentary and book, both expected to be published in 2025.

GRAY, BETHANY DIANNE ELKE, Associate Professor, English, 10 years of service, fall 2021

Title: Corpus-based research methods for grammatical analysis: Extending beyond structure to patterns of use

Professor Gray made significant progress toward an academic book on corpus-based research methods during the assignment, as well as another book project on Analyzing the Grammar of Spoken and Written English. Gray also completed numerous proposals, publications and other academic works, as well as delivering a plenary talk at an international conference.

GUAN, YONG, Professor, Electrical and Computer Engineering, 20 years of service, spring 2022

Title: Collaboration with HKU/ASTRI on IoT Security/Forensics and Course/Textbook Developments

Professor Guan, an expert in digital forensics, used the assignment to expand his research program and develop cybersecurity course modules. Additional results included 10 accepted or published research papers, two invited presentations, four technical demonstrations for law enforcement practitioners, and \$800,000 in new external research funding.

HASHEMI, NICOLE, Associate Professor, Mechanical Engineering, 11 years of service, 2021-2022 academic year

Title: Microfluidics Laboratory at Stanford University

Professor Hashemi spent her assignment studying single nucleotide polymorphism identification, which has gained critical importance in applications such as cancer screening, genotyping, and COVID-19 diagnostics. Results from this work included three published manuscripts, and the preparation of three external funding proposals totaling \$3.9M.

HERNANDEZ SANDOVAL, BONAR L, Associate Professor, History, 8 years of service, 2021-2022 academic year

Title: The Making of Guatemala's Religious and Political Activists during the Cold War

Professor Hernandez's book project examined the religious and political context that inspired Guatemalan Catholics to become political activists and even revolutionaries during the Cold War. Hernandez Sandoval also developed an Iowa State course on the history of religion and politics in Latin America.

KELLY, JONATHAN W, Professor, Psychology, 13 years of service, spring 2022

Title: Navigation in virtual reality

Professor Kelly used the assignment to examine motion sickness in virtual reality, known as cybersickness. Results of this work included multiple research studies on the topic, as well as the preparation of five journal articles, additional research opportunities for undergraduate and graduate students, and \$229,000 in National Science Foundation funding.

KUSOW, ABDI M, Professor, Sociology, 13 years of service, 2021-2022 academic year

Title: Contributions to International Migration: African Immigrants in the United States and China
Professor Kusow used the assignment to study three areas of "south-south" international migration: examining state structures and capacity for accepting immigrants; documenting the experiences of African immigrants to Guangzhou, China; and publishing a paper on vulnerability and perceived surveillance among emigrants to China. The results were incorporated into two journal articles and will help students and policymakers better understand migration issues.

LE, WEI, Associate Professor, Computer Science, 8 years of service, spring 2022

Title: Analyzing and Testing AI Systems

Le's assignment explored the intersection of artificial intelligence (AI) technology and software engineering techniques such as program analysis and testing, as well as AI and medicine. Results from this work included the research and preparation of four research paper, additional research opportunities for Iowa State students, and two external funding proposals totaling \$1.35 million.

LESLIE, THOMAS, Morrill Professor, Architecture, 22 years of service, spring 2021

Title: Chicago Skyscrapers: 1934-1984

Professor Leslie completed a 150,000-word, 200 illustration manuscript during his assignment, which will be published in spring 2023. The book demonstrates how Chicago's 20th century skyscrapers – many of which are entering the eligibility window for historic landmarking – are evidence of post-WWII technological, socioeconomic, political and demographic changes.

LEVITAS, VALERY, Professor, Aerospace Engineering and Mechanical Engineering, 14 years of service, fall 2021

Title: High-pressure mechanochemistry

Professor Levitas conducted experiments in a new research field focused on the effects geophysics in the mechanisms for deep-focus earthquakes. Results included 16 research papers,

new research collaborations, new materials for Iowa State courses in mechanochemistry, \$25.5M in external funding proposals, and \$600,000 in awarded funding.

LILLIGREN, INGRID MARGARET, Professor, Art and Visual Culture, 29 years of service, fall 2021

Title: Adaptations

Professor Lilligren completed a residency with internationally recognized multidisciplinary artist Theaster Gates – an Iowa State alumnus and holder of an honorary doctorate – where she created a series of ceramic sculptures, titled Adaptations. Lilligren also completed a work with an Iowa State colleague for Iowa State's Biorenewables Art Innovators Competition and conducted research on ceramic glazes.

LONERGAN, ELISABETH HUFF, Professor, Animal Science, 24 years of service, fall 2021

Title: Establish Cutting Edge Muscle Proteomics Techniques and Improve Research

Professor Lonergan visited Colorado State University to enhance her skills in proteomic analysis of skeletal muscle and early postmortem beef. Results included the preparation, submission or publication of seven abstracts, six scientific papers, a \$72,000 grant from the Iowa Pork Producers Association, and a \$100,000 grant proposal to the Minnesota Beef Council. Lonergan was also appointed as editor-in-chief of The Journal of Animal Science.

LONERGAN, STEVEN MICHAEL, Professor, Animal Science, 24 years of service, spring 2021

Title: Development of New Proteomic Technologies for Application in Animal Science Research and Investigation of New Educational Opportunities for Animal Science Students

Professor Lonergan traveled to Colorado State University to expand his expertise in muscle and meat protein chemistry and proteomics to ensure both fresh pork quality, and relevant education for students in animal science disciplines. Results from this work included teaching a graduate seminar at Colorado State, two peer-reviewed manuscripts, eight peer-reviewed abstracts, and submission of a \$650,000 USDA funding proposal.

MAO, HUIFANG, Professor, Marketing, 6 years of service, fall 2021

Title: Effects of Virtual Fitting Room Among Consumers of Varying BMI Levels

Professor Mao completed three experimental studies related to virtual fitting rooms and their potential to affect consumer purchase decisions for various groups. Results included the preparation and submission of two research papers, as well as three presentations at international marketing conferences.

MCKINNEY, ELLEN CAROL, Associate Professor, Apparel, Events, & Hospitality Management, 9 years of service, fall 2021

Title: A Partnership to Support Sustained Textile Production: Learning from Japanese Marketing

Professor McKinney received a Fulbright Scholarship to study innovation in the design and marketing of Japanese textiles. This work, including travel to Japan, resulted in material for multiple journal articles, new collaborations with colleagues in Japan, a textiles blog, and course materials for McKinney's Iowa State course in creative design processes.

MONTAZAMI, REZA, Associate Professor, Mechanical Engineering, 11 years of service, spring 2022

Title: Broadening Understanding of Mechanics and Manufacturing of Soft Materials

Professor Montazami used the assignment to study soft phase change materials, including how they operate at a molecular level, and how they respond to stimuli. Results included the preparation and/or publication of two journal articles, three new research projects, the recruiting

of graduate students, new course materials for Montazami's Iowa State courses, and a \$60,000 external funding proposal.

MOSCHINI, GIANCARLO, Professor, Economics, 35 years of service, spring 2022

Title: Innovation and Market Power in U.S. Agriculture

Professor Moschini examined how genetically engineered (GE) crop varieties and related products are priced, including the effects of licensing and cross-licensing between otherwise competing firms. Results included completion of a journal manuscript, development of new research opportunities and course materials in agricultural economics, and a \$300,000 USDA funding award.

MYERS, MEGAN JEANETTE, Associate Professor, World Languages and Cultures, 6 years of service, spring 2022

Title: Assessing Impact at Home and Abroad: International Community-Based Learning

Professor Myers taught an 8-week community-engagement literature class for high school students in the Dominican Republic, as well as an additional course for undergraduate students and professionals at the Technical University of Santiago. Myers also made progress on a book manuscript, delivered an invited presentation, and prepared a \$60,000 National Endowment for the Humanities funding proposal.

PASCHKE, TERESA, Professor, Art and Visual Culture, 22 years of service, fall 2021

Title: Art Practice: New Directions

Professor Paschke's assignment explored new techniques in the creation of woven textiles. Paschke also participated in two textile exhibitions, submitted art for additional exhibitions across the U.S., developed new coursework for Iowa State students, and submitted a \$25,000 McKnight Fellowship for Fiber Artists funding proposal.

PHILLIPS, LEIGH ALISON, Associate Professor, Psychology, 8 years of service, fall 2021

Title: A Behavior Change Triage Tool and Coordinated Health Hub for Optimizing Patient Care

Professor Phillips worked with Iowa State graduate students and collaborators in central Iowa to develop and test a coordinated health hub to improve patient-provider communication around patient self-management of chronic illness. Professor Phillips and her collaborators also earned a \$1 million CDC grant focused on fall prevention and submitted an additional funding proposal for \$3.6 million.

RAMAMOORTHY, ADITYA, Professor, Electrical and Computer Engineering, 16 years of service, fall 2021

Title: Exploring Industrial Collaborations on Distributed Computing Algorithms

Professor Ramamoorthy used the assignment to study quantum information theory. Results include the development of a new interdisciplinary course for students in engineering, physics and mathematics; preparation of several research papers, and the submission of a \$800,000 National Science Foundation funding proposal.

RAMASWAMI, SRIDHAR N, Professor, Marketing, 35 years of service, spring 2022

Title: Research and Development Responsiveness to Market Opportunities

Professor Ramaswami completed research projects examining boardroom composition and governance from marketing and supply chain perspectives. Results include one published journal article and the submission of three additional articles, and the development of course materials that provide a strategic view of boardroom activities for Iowa State marketing students.

REMES, JUSTIN, Assistant Professor, English, 7 years of service, 2021-2022 academic year
Title: Found Footage Films: A Work of Experimental Scholarship

Professor Remes made substantial progress on a book project examining the history of cinematic remixes, works that are created by manipulating and re-editing footage from preexisting films. The results of his research will be incorporated into Iowa State undergraduate and graduate courses. Remes also prepared five essays, delivered an invited lecture in Portugal, and began serving on the advisory board for Found Footage Magazine.

SADOW, AARON DAVID, Professor, Chemistry, 17 years of service, fall 2021
Title: Sustainability in Catalytic Chemistry and Polymers

Professor Sadow was awarded a Fulbright Fellowship to support various activities at the University of Pisa, Italy, including teaching a short course to graduate students, and delivering a research presentation to faculty and scientists on polymer upcycling – using energy from Iowa wind turbines – to create new manufacturing opportunities in Iowa.

SAMS, BRANDON, Assistant Professor, English, 5 years of service, fall 2021
Title: Reading as a Teacher: Knowledge, Pleasure, Responsibility

Professor Sams made substantial progress on a book project focused on the experiences of English teachers as they read and prepare for class. The book, scheduled for submission in 2023, will also influence how Iowa State students prepare to teach literature in their own classrooms after graduation.

SCHAAL, MICHELE A, Associate Professor, World Languages and Cultures/Women's and Gender Studies, 10 years of service, fall 2021

Title: The Art of Genre- and Genderbending: Virginie Despentès' Authorial Politics
Professor Schaal completed several chapters for her monograph on Despentès, a major literary and feminist figure in the French-speaking world and globally. The work benefits Iowa State students by providing new material for Schaal's classes. Schaal also hosted a conference on Women in French for nearly 150 scholars, artists, and students, and prepared a scholarly article.

SCHNEIDER, IAN CHRISTOPHER, Associate Professor, Chemical and Biological Engineering, 13 years of service, fall 2021

Title: Developing Collaborations in Skin Immunology and Regenerative Medicine that Leverage Strengths in Engineering Biophysical Aspects of the Cell Microenvironment
Professor Schneider conducted research on transdermal (through the skin) delivery systems for vaccines and other biomaterials, with application in conditions such as liver fibrosis and animal reproductive biology. This work enhances Iowa State biomedical engineering course materials, supports the work of the university's Nanovaccine Institute, and will lead to research publications and funding proposals.

SHAFEI, BEHROUZ, Associate Professor, Civil, Construction, and Environmental Engineering, 7 years of service, 2021-2022 academic year

Title: Novel Structural Applications of Shape-Memory Materials for Hazard Mitigation Purposes
Professor Shafei explored the use of shape-memory materials to design structures, such as concrete bridge columns, and how they are impacted by load conditions. This work resulted in 24 research papers and reports, new Iowa State course materials, \$1.7M in new external funding, and an additional \$800,000 in pending proposals.

SUAREZ, LUCIA M, Associate Professor, World Languages and Cultures, 5 years of service, fall 2021

Title: Belonging: Latina Memoirs in Times of Displacement

Professor Suarez began work on her book project examining the role of Latina life writings to shape human rights activism and civic solidarity. This research contributes to curriculum development in Iowa State's cross-disciplinary U.S. Latino/a Studies program, and resulted in invitations for a conference presentation, submission of a book chapter, and an invitation to be a visiting scholar at the University of Poznan in Poland.

SWANNER SMITH, ELIZABETH, Associate Professor, Geological and Atmospheric Sciences, 7 years of service, fall 2021

Title: Determining the biogeochemical significance of iron-rich lakes in the Midwest, U.S.A.

Professor Swanner led several fieldwork projects to lakes in the Midwest with undergraduate and graduate students, in support of a National Science Foundation CAREER Award. Results include the preparation of 13 journal articles, additional opportunities for graduate students and postdocs, and the submission of two grant proposals totaling more than \$1 million.

TESSONNIER, JEAN-PHILIPPE, Associate Professor, Chemical and Biological Engineering, 10 years of service, fall 2021

Title: Electrifying the Production of Biobased Chemicals

Professor Tessonnier studied electrochemical manufacturing – using electricity instead of heat, for example, to promote chemical transformation in feedstocks – which has wide ranging applications. Tessonnier also established collaborations with colleagues in Germany and earned two National Science Foundation funding awards totaling \$2.3M.

URBATSCH, ROBERT, Professor, Political Science, 16 years of service, spring 2022

Title: Borderland Political Behavior

Professor Urbatsch worked on a book project examining how living near other political jurisdictions (such as another state or country) changes political and economic incentives, including what policies borderland residents support, and how they engage with political processes by voting or contributing to campaigns. Results also included the preparation or revision of seven journal articles and the launch of an additional book manuscript.

VASWANI, NAMRATA, Professor, Electrical and Computer Engineering, 17 years of service, spring 2022

Title: Statistical Machine Learning in Health Informatics and K-12 Mathematics Education

Professor Vaswani used the assignment to improve K-12 math education, including presenting the CyMath outreach program in underserved public elementary schools. Additional results include the submission of two manuscripts, five conference papers, and a \$300,000 National Science Foundation funding award.

WRIGHT, MARK MBA, Associate Professor, Mechanical Engineering, 10 years of service, spring 2022

Title: Next-generation simulation and modeling of biorenewable, agronomic, and human systems for enhanced climate-change resiliency and decision-making

Professor Wright focused on several projects during his assignment, including work with the Lawrence Livermore National Laboratory on carbon capture systems, and the Iowa Economic Development Authority on emerging carbon markets. These efforts resulted in 10 published articles, and teaching and textbook materials for an Iowa State course on global climate and energy systems. Wright, with colleagues, also submitted 14 external grant proposals. Four proposals totaling \$7.5M have been funded; an additional 10 proposals are pending, totaling more

than \$132M, including a \$100M proposal to develop technologies that create products from manure.

WU, YUE, Professor, Chemical and Biological Engineering, 8 years of service, spring 2022

Title: Integrated Electricity-Heat-Clean Water Cogeneration for Environment and Energy Sustainability

Professor Wu used the assignment to investigate heat transfer in nanostructured materials, addressing global challenges such as solar energy and sustainability. Results included a U.S. patent, the preparation/publication of three research papers, an invited talk, an additional \$100,000 in grant funding from the U.S. Office of Naval Research, and two pending funding proposals totaling \$1.1M.

ZARECOR, KIMBERLY ELMAN, Professor, Architecture, 17 years of service, spring 2022

Title: Advancing a Collaborative Research Agenda for Rural Iowa Communities

Professor Zarecor used her assignment to complete additional work focused on maintaining the quality of life in small and shrinking Iowa towns. Results included a research publication, a video project on designing inclusive and place-based STEM programs, a Rural Shrink Smart webinar series, redesign of Iowa State's interdisciplinary design program, and collaboration on a \$500,000 National Science Foundation grant.

ZHOU, YUYU, Associate Professor, Geological and Atmospheric Sciences, 7 years of service, fall 2021

Title: Global urbanization and building energy use modeling for urban energy sustainability

Professor Zhou's assignment focused on the development of region-specific strategies to mitigate growing energy demand in urban areas. Results include the publication or submission of four journal articles, updated materials for an Iowa State meteorology course, a \$194,000 NASA funding award, and two pending proposals totaling \$1.66 million.

ZHU, DAN, Professor, Information Systems and Business Analytics, 24 years of service, spring 2022

Title: Research and Teaching in Data Analytics

Professor Zhu worked with world-known scholars in artificial intelligence and machine learning during the assignment, sharing research on smart health informatics, and developed new collaboration to benefit Iowa State's students and academic programs. Results included the submission of five journal articles, and the development of new course materials in business analytics.