

VITAL INSTRUCTIONAL MINIGRANT AWARDS: SUMMER 2021 – 2026

CHARLES WIDGER SCHOOL OF LAW

Increasing Engagement and Active Learning in Criminal Procedure: Adjudication – The goal of this project is to move to a more “flipped classroom” using a series of short video lectures, with embedded assessments, aligned to new material. Utilizing this approach will give students a better grasp of the core substantive material while gaining additional experience grappling with the doctrinal and ethical challenges that await them as practitioners of criminal law.

2021 – CHANENSON, Steven, JD, Charles Widger School of Law

Civ Proloton – The purpose of this project is to guide students in their learning through reflection and self-assessment by creating pre- and post-class videos in the model of online workout videos (i.e., Peloton) for each class session of Civil Procedure (Civ Pro + Peloton = Civ Proloton). The pre-class videos will help the students to be in the space to learn, and the post-class videos will guide the students to reflect on the material and self-assess their learning.

2021 - JULIANO, Ann, JD, Charles Widger School of Law

COLLEGE OF ENGINEERING

Construction Engineering CEE 4702: A Redesign Toward Holistic, Project-Based Learning in the Era of AI – This project redesigns a construction engineering course around an integrated, semester-long project that connects scheduling, estimating, safety, BIM, and AI-supported tools within authentic workflows. Students use reality capture and structured AI-guided reflection to evaluate decisions rather than simply operate software. The approach strengthens systems-level thinking, engineering judgment, and critical interpretation of technology, better preparing students to make informed, responsible decisions in contemporary, AI-enabled construction practice.

2026 – TAVALKOLI, Arash, Ph.D., Civil & Environmental Engineering

Embedding Experimental Side-Channel Analysis in Post-Quantum Cryptographic Engineering Course – Post-quantum cryptography (PQC) refers to cryptosystems that resist quantum attacks. The PI has launched a Post-Quantum Cryptographic Engineering graduate course for two years, but the side-channel analysis aspect (a type of physical analysis to exact PQC algorithm’s secret) of practical experimenting experience is missing. To enhance the students’ learning experience and cultivate them as potential PQC talents, this project aims to develop a new course module by embedding experimental side-channel analysis for PQC.

2026 – XIE, Jiafeng, Ph.D., Electrical & Computer Engineering

Integrating Engineering Design and Sustainability in Junior Mechanical Engineering Course: An Active and Project-Based Approach Using SolidWorks – This project enhances students' skills in SolidWorks modeling, mechanical design, and sustainability through a real-world engineering challenge. Students will model a structural or mechanical component, perform finite element analysis, and evaluate its performance under realistic loading. By bridging theory and practice, they will develop expertise in material selection, sustainability, and design criteria. The project fosters critical thinking, problem-solving, collaboration, and communication, with formative and summative assessments ensuring comprehensive learning.

2025 – MALEKMOTIEI, Leila, Ph.D., Mechanical Engineering

Embedded Systems for Hardware-Based Learning in Mechanical Engineering – This project adds new hardware-based learning projects to the freshmen-level ME1205 (Introduction to Computer Programming) so that students will learn about sensors, data visualization and algorithm development using embedded systems. This work will provide a more engaging environment to learn computer programming and a concrete way to prepare for careers in industry or research.

2025 – MCGILL, Stephen, Ph.D., Mechanical Engineering

COLLEGE OF ENGINEERING cont.

Developing Lab Content and Educational Experience for Tissue Engineering Class – This proposal seeks two main objectives that align with Villanova’s missions. First objective is to enhance undergraduate student engagement, interdisciplinary learning, and hands-on experiences in Tissue Engineering at Villanova University. By integrating laboratory experiments and case studies for collaborative learning strategies, the course will provide a comprehensive foundation for students entering the biomedical field. Second, a sustainability discussion will be incorporated into the lectures. This class was included in the Cell Engineering and BME minors.

2025 – RODRIGUEZ-RIVERA, Gabriel, Ph.D., and ELMER, Jacob, Ph.D., Chemical & Biochemical Engineering

Enhancing Group Work Assessment and Peer Evaluation in Chemical Engineering Lab Courses – This project strengthens group work and peer evaluation in the Chemical and Biological Engineering Unit Operations Lab sequence through structured feedback, instructor training, and iterative team contracts. AI-assisted summaries and guided discussions will foster open, constructive feedback. Students will improve communication, collaboration, and problem-solving while reducing free riding. Aligning with departmental and ABET goals, this project provides a model for enhancing teamwork assessment, potentially serving as a pilot for other CBE courses.

2025 – STILLMAN, Zachary, Ph.D., Chemical & Biochemical Engineering

Enhancing Student Engagement and Visualization through Integrated Lab Activities with a Hydraulic Flume – This project proposes to redevelop portions of an existing course through integration of hands-on lab experiences which will provide students with consistent opportunities for enhanced engagement, visualization, and feedback. The course will be taught in a new lab space, utilizing a modern hydraulic flume and companion models to emphasize data collection, problem solving, and analysis, enabling students to improve technical and visualization skills while also making connections between lecture topics and real water resources applications.

2025 – WATERS, Kevin, Ph.D., SMITH, Virginia, Ph.D., and GOOD, Kelly, Ph.D., Civil & Environmental Engineering

Integrate the Emerging A.I. Techniques in the Course Chemical Process Control – The purpose of this project is to enhance students’ ability to address math-intensive process control problems by using A.I. as a tool for model parameter estimation and process controller tuning. Specifically, three modules will be developed, using Python as the A.I. coding platform, that will equip students with essential competencies in using A.I. in chemical process control. This teaching intervention will help students gain central skills in effectively using A.I. as a tool in chemical and biological engineering and provide them with the experience needed to succeed post-graduate.

2024 – HUANG, Zuyi (Jacky), Ph.D., Chemical & Biochemical Engineering

Redevelopment of First-Year Engineering Design Course: Integration of Project-Based Learning and Social Justice Instruction – This project outlines the comprehensive re-design of the required common course for all first-year engineering students, partly necessitated by students entering the college with a declared major. The project aims to address several current challenges pertaining to an incohesive course curriculum, inconsistent instructor presence, difficulties in monitoring student performance, and insufficient focus on the engineering design process resulting in students’ learning gaps in the subsequent engineering courses. It will highlight the focus on students’ learning the engineering design process by engaging in team-based and project-based learning activities. The course design will include an equity/human centered framework to introduce students to the integration of social justice and engineering design, an important learning goal for the College.

2024 – JAMISON, David, Ph.D., Mechanical Engineering, WALKUP, Stephanie, Ph.D., Civil & Environmental Engineering, KLEIN, Liesl, Ph.D., Electrical & Computer Engineering

Integration of a Hands-On Project into ME 5206 Aircraft Design – This project aims to enhance undergraduate engineering students’ learning of aircraft design by designing, testing, and flying an airplane. Working in small teams the students will apply and test their conceptual design knowledge as they design a remote-controlled plane. The students will be challenged to be creative and innovative in the design process and experience firsthand what post-graduate studies and/or careers in aerospace engineering might be like.

2024 – NERSESOV, Sergey, Ph.D., Mechanical Engineering

COLLEGE OF ENGINEERING cont.

Development of a New Graduate Course: Research Driven Innovation with NSF I-Corps – This project seeks to design and implement a new graduate course in research innovation that bridges the gap between academic research and real-world applications. It will provide the students with experiential learning opportunities to identify market needs, validate ideas through customer feedback, and navigate the complexities of the entrepreneurial ecosystem.

2024- OLIVIER, Lauri, Ph.D., Engineering Entrepreneurship

Development of Quantitative Physiology for Biomedical Engineering Applications – The purpose of this project is to implement improved instructional methods and refreshed modes of learning (problem-based learning, student-led discussion) to improve students' mastery of the content, better retain knowledge, and prepare them for future learning and problem-solving as they progress in biomedical engineering.

2023 – BRACAGLIA, Laura, Ph.D., and ELMER, Jacob, Ph.D., Chemical & Biological Engineering

Green Stormwater Infrastructure Design Lab - The goal of this semester-long lab project and field experiment added to CEE 4521 is to increase student understanding of green stormwater infrastructure design and engineering design judgement. Students will develop prototypes and test them over the semester, with accompanying work on design calculations and computational models. Students will also learn how to create a lab experiments, identify key problems, and develop an engineering solution. The project will include more project-based and collaborative/team-based learning.

2023 – WADZUK, Bridget, Ph.D., Civil & Environmental Engineering

3D Printing: Design and Assessment of an Additive Manufacturing Lab for Junior Mechanical Engineering Students - The objective of this work is to enrich the 3D printing activity conducted in a junior-level lab and develop relevant formative assessments. This work will provide students with statistically reliable data to make informed design and manufacturing decisions and exposure to method, while practicing good design practices, specifically using simulated prototypes to predict performances, and design parts to meet established criteria.

2022 – SETH, Deeksha, Ph.D., Mechanical Engineering

COLLEGE OF LIBERAL ARTS AND SCIENCES - LIBERAL ARTS

Revising a Disciplinary Statistics Course to Develop New Student Technical Skills – This project will re-design the structure of GEV3300, Statistics in Environmental Science, to shift the course from an Excel-based course to be centered on the use of R language programming. The proposed shift will help our students develop new technical skills that will benefit them in future coursework and are in high demand in their field. Additionally, the proposed project aligns the course with evidence-based recommendations for best teaching practices in undergraduate statistics.

2026 – ALMEIDA, RYAN, Ph.D., Geography & the Environment

Extending Instruction Beyond the Classroom: Course-Aligned AI Tutors in Research Methods – This project expands and formalizes a set of custom AI-based tutoring tools already in use in PSY 2050 (Research Methods in Psychology). These tools support student reasoning, planning, and revision across the milestone-based group research proposal. By embedding guided, course-aligned AI tutors into existing milestones, the project strengthens students' ability to integrate feedback, regulate their learning, and make principled methodological decisions, while promoting equitable access to instructional support outside of class time.

2026 – BERRY, Grant, Ph.D., Psychological & Brain Sciences

COLLEGE OF LIBERAL ARTS AND SCIENCES - LIBERAL ARTS cont.

Using Game Scenario to Teach Contingency in Lincoln's America – This proposal seeks funding to develop "Lincoln's America," a new Core History course using the Reacting to the Past game "Kentucky, 1861." Students will assume roles of historical figures debating secession, using primary sources to develop arguments while conditions change rapidly. This game-based pedagogy teaches contingency—understanding that historical outcomes weren't predetermined—alongside critical thinking, empathy, and evidence-based reasoning. The course will include exams and collaborative reading activities. Funding covers training at the RTTP Summer Institute and syllabus development time. This approach addresses students' difficulty understanding contingency while making history compelling and relevant.

2026 – GIESBERG, Judith, Ph.D., History

Math Bridge to STEM and Business – The purpose of this project is to create a course that serves as a bridge for students with demonstrated academic potential who are interested in majors in STEM and Business and are behind their peers in mathematical maturity. The course is designed to strengthen foundational skills, build confidence in problem-solving, and foster a supportive community of learners. Our goal is for this cohort to succeed academically and to become fully integrated into Villa nova's culture of curiosity, collaboration, and excellence.

2026 – GILLEY, Ebony, Ph.D., Mathematics & Statistics

The Unessay: An Innovative Tool for Teaching and Learning History – The “unessay” is a rigorous, innovative teaching and assessment tool for teaching and learning history in challenging times. It is a creative final project that enhances students' learning and meets disciplinary goals, offering students an alternative method to explore their historical interests beyond the confines of the traditional essay. This project will refine my exploratory use of the assignment from Fa25 and create a model for faculty to implement and attract students to the major.

2026 – KOLSKY, Elizabeth, Ph.D., History

Strengthening Systems-Level Reasoning in Distributed Systems – This project develops the Distributed Systems course to strengthen systems-level reasoning through scaffolded instruction and an inquiry-driven project structure. Students will move beyond implementation to justify design decisions, conduct empirical evaluation, and critically assess AI-assisted solutions. By embedding explanation, validation, and structured assessment into core coursework, the project aims to deepen conceptual understanding, improve analytical skills, and promote responsible engagement with modern development tools.

2026 – MARGAPURI, Venkat, Ph.D., Computing Sciences

From Lecture to Learning: A Flipped Lifespan Approach to Human Development – This project redesigns Human Development as a flipped, theme-based (rather than chronological) course organized around core developmental domains. Foundational concepts are introduced asynchronously, reserving class time for clarification, nuance, contemporary research, and structured application. A weekly colloquium integrates empirical readings with student-led discussion and reflection. The redesign aims to deepen conceptual understanding, strengthen critical thinking, and enhance students' ability to apply developmental science in real-world contexts.

2026 – SLONECKER, Emily, Ph.D., Psychological & Brain Sciences

Building an Elementary Education Program Two Courses at a Time – This proposal describes a collaborative redesign process focused on three areas: Revising two courses for the new Elementary Education Major; Documenting our revision process with an emphasis on professional dispositions to create a model for future course development; and, Using this new model to guide faculty in the creation of other new courses for the Elementary Education major.

2026 – SOUTTER, Madora, Ph.D., and SKRLAC LO, Rachel, Ph.D., Education & Counseling

Redesign of RJDC Course to Advanced Communication Elective – This proposal seeks summer salary funding to redesign a course (COM 3449: Organizing for Reproductive Justice) previously offered as a university Race, Justice & Dialogue Course (RJDC) to instead serve as an advanced communication elective in the organizational communication specialization. In an effort to reduce reliance on adjuncts for organizational communication electives and introduce a greater number of students to an organizational communication approach, the course will be offered annually, starting in Fall of 2026.

2026 – WAY, Amy, Ph.D., Communication

COLLEGE OF LIBERAL ARTS AND SCIENCES - LIBERAL ARTS cont.

Repairing Nature: Options for a Healthy Planet – This course seeks to help students become aware of the restoration and regeneration of the natural world that is occurring worldwide. It offers learning about options for restoring nature that exceed conservation and sustainability. Course topics include soil repair and carbon drawdown, assessing nature's forms of intelligence, myco-, phyto-, and ento-remediation, permaculture, rewilding, and ecopsychology, enabling students to experientially learn about specific regenerative strategies.

2025 – ARMON, Chara, Ph.D., Augustine and Culture Seminar Program

Graduate-Level Writing and Research Support in the English M.A. Program – This project seeks to develop and implement forms of writing support for graduate students in our MA program by creating a resource library, instructional materials, workshop curriculum, and graduate student writing groups.

2025 – LEE, Yumi, Ph.D., and MULLEN, Mary, Ph.D., English

Innovative Approaches to teaching Social Psychology and Inequalities – This course will adopt a sociological social psychology approach to exploring systems of inequalities in the US and transnationally. It will examine the ways in which forces such as race/ethnicity, class, gender, and citizenship shape our emotions and perspectives. The course will familiarize students with the major theories and concepts in the field of social psychology and train them to apply these theories and concepts through creative assignments such as visual essays, media analysis papers, and presentations.

2025 – SUN, Ken, Ph.D., Sociology & Criminology

Extending Accessibility for Data Science Courses in the Social Sciences – This project will redesign undergraduate and graduate data science courses to be fully accessible online, featuring pre-recorded video lectures and R programming tutorials. All course materials will be hosted on a Github repository, granting students ongoing access even after the course ends. This ensures they can review challenging concepts during the semester and revisit content as needed for future coursework or research projects, fostering long-term learning and skill retention.

2025 – WELDZIUS, Ryan, Ph.D., Political Science

Redesigning the Foundations of College Counseling Course – This project seeks to help students apply business skills to the various counseling contexts by engaging them with unfolding case studies. The course redesign is based on student feedback and faculty observations and addresses the expressed need to create counseling-based learning materials that help illustrate the theoretical business consulting concepts. The revised course design aims to help school counselors and graduate students intentionally utilize and practice business consulting skills to address school counseling contexts.

2024 – HALEY, Amber, Ph.D., Education & Counseling

Strengthening Ministerial Competencies for a Synodal Church – This course revision will shift the theoretical course to one that focuses on applied skills grounded in the synodal Spiritual Conversation method that fosters active listening, communal discernment, and collective action. This revised course design aims to help ministry students develop and practice these critical skills and thus prepare them to apply these skills in their various professional and ministerial contexts.

2024 – JOSEPH, Jaisy, Ph.D., Theology & Religious Studies

Integrating Artificial Intelligence (A.I.) in Communication Research and Writing – This project aims to enrich the existing required graduate and undergraduate communication research methods courses through the development of a new, free-standing, one-credit module on using A.I. for research and scholarly writing. This course will help students develop proficiency in intentionally using A.I. as an assistive tool in their research practice and writing, and help students practice the ethical use of A.I. in research and writing.

2024 – MANDHANA, Dron, Ph. D., Communication

COLLEGE OF LIBERAL ARTS AND SCIENCES - LIBERAL ARTS cont.

Augustine and Women Faculty Workshop – This project aims to enrich and diversify the curriculum of ACS 1000, Ancients, a required course for all first-year students, especially the discussion of Augustine’s *Confessions* by including a missing perspective to class discussions on the *Confessions*; that is the role of women in ancient society. Grounded in a discussion of the book, *Queen of a Fallen World: The Lost Women of Augustine’s Confessions* by K. Cooper (20223), instructors will explore the book’s application to teaching ACS 1000 and generate new instructional activities, writing prompts, and in-class exercises. They will learn about women in the life of Augustine and explore the *Confessions* through the lens of gender, oppression, privilege, and power.

2024 – MITCHELL, Colleen, Ph.D., Augustine and Culture Seminar Program

Reviving and Redesigning MAT 4410: Mathematical Modeling – This course redesign will bring math modelling into the curriculum and help students apply math in new contexts thus advancing their postgraduate career preparation. The revised course design emphasizes active, project-based learning and de-emphasizes traditional grading practices to encourage students to revise their work based on feedback, to practice skills, and to present their work in a portfolio format. The student projects are scaffolded in complexity and skill-building thus supporting continuous, deeper learning.

2024 – MULLER, Kathleen, Ph.D. and MULLER, Peter, Ph.D., Mathematics & Statistics

Integrating the Use of Spreadsheets into the General Chemistry Laboratory Courses – The goal of this project is to address a key challenge in students’ knowledge and skill to conduct computational data analysis. This lab revision will familiarize students with using spreadsheets to generate graphs and do calculations. As the general chemistry sequence courses serve non-chemistry majors, the students will be able to transfer their data analysis skills to their respective disciplines and acquire enhanced skills in quantitative literacy.

2024- PALENCHAR, Peter, Ph.D. and HEINRICH, Michael, Ph.D., Chemistry

Redesigning SPA 1122 as a Content-Based Course – The purpose of this course redesign is to enrich the mandatory undergraduate language requirement curriculum to increase student motivation to pursue Spanish studies. SPA 1122 will be redesigned from a multi-section, grammar- and vocabulary-based language course, into a proficiency-oriented, content-based course emphasizing cultural fluency. The revised course design will immerse students in language learning with authentic materials and content that is relevant to them. A topic-specific course template (e.g., music) that utilizes authentic, instructor-developed materials, learning activities and assessments to enhance students’ communicative competence will deepen their cultural literacy and critical thinking skills, and ultimately engage them in a holistic language learning process.

2024 – PERCOCO, Cristina, Ph.D. and COLÓN-RODRÍGUEZ, Larisa, Ph.D., Spanish

Mitigating Student Hardship by Reimagining Astronomy Labs – The purpose of this project is to re-design and deploy a web-based version of lab simulations, thus alleviating the need to rely on lab computers that use outdated software. This proposed lab revision will help reduce students’ stress and anxiety as they will be able to focus their attention on learning science rather than struggling with outdated computer programs. The simulations will be built in house, using open-source software, providing sustainable options for future enhancement of the labs.

2024- Prša, Andrej, Ph.D. and HAMBLETON, Kelly, Ph.D., Astrophysics & Planetary Science

Use of Educational Escape Games to Improve Student Critical Thinking and Engagement with Technical Content – This project focuses on using gamification to enhance undergraduate nursing students’ engagement and critical thinking skills while mitigating cognitive load and assessing content comprehension. Working with A.I. the faculty will be able to develop educational games that will be partially digital, thus enabling open access sharing. The digital nature of the games will allow student groups to progress at their own pace, it will provide hints to the students throughout the game, and it will offer automated feedback upon completion. Automated feedback will ensure that all students will receive timely and individualized feedback to help them improve their performance and it will also help diagnose and address learning issues.

2024 – RIVARD, Rebecca, Ph.D., Biology

COLLEGE OF LIBERAL ARTS AND SCIENCES - LIBERAL ARTS cont.

Data Sleuthing in Geospatial Education: Intentionally Integrating Project Organization and File Management into the Introductory Curriculum – The aim of this project is to enrich the undergraduate majors’ academic preparation for other GEV courses and postgraduate opportunities. This course revision will help students develop and practice relevant data management and data sleuthing skills that are critical for students to utilize in their future courses, in research, and in their careers. The proposed course revision has been identified by both students and faculty as a critical student learning need, especially given the recent growth in the department’s undergraduate programs and will significantly impact the students’ learning experiences.

2024 – SANTORO, Jennifer, Ph.D., Geography & the Environment

Enhancing Two Introductory Physics Laboratory Courses – The purpose of this project is to enrich the undergraduate students’ learning experiences in the laboratory through a lab revision that will modernize experiments, build cohesion between lectures and labs, develop new experiments that foster physics-thinking, modeling abilities, problem-solving, and critical data analysis. The proposed lab re-design is grounded in both student feedback and discipline-based pedagogy literature and will significantly impact the learning experiences of many students.

2024 – SIAH, Javad, Ph.D., Physics

Digital Mapping of Animal Flourishing on Villanova’s Campus - This project seeks to rebuild a major assignment for ETH3010: Animal Ethics. The current method of having students create a physical map and academic poster presentation will be replaced by dynamic digital mapping using Arc GIS StoryMaps. StoryMaps eliminate a number of pedagogical and methodological constraints of the previous modality, encouraging experiential learning through multiliteracies in the Digital Humanities.

2023 – COVEY, Allison, Ph.D., Ethics

“Legacies of Revenge” - An interdisciplinary course offered in two sections, graduate and undergraduate, “Legacies of Revenge” will study an influential 16th c. play called The Spanish Tragedy in the context of western culture’s centuries-long fascination with the dynamics of revenge. We will explore its literary background and legacy in contemporary media. Then, collaborating across sections, we will work with and as theatre-makers to contribute to a spring production of the play in the Mullen Center’s Court Theatre.

2023 – DAILEY, Alice, Ph.D., English and PHILLIPS, Chelsea, Ph.D., Theatre

“Shaping a Life” Initiative - Building upon the 2021 VITAL Minigrant, our proposal deepens the curricular architecture of the “Shaping” series by strengthening: learning objectives, course syllabi, and faculty instruction. The 2021 grant created a learning community through co-curricular experiences, alumni mentorship, student facilitator opportunities, and speaker dinner series. The courses’ overwhelming success has meant that students choose to enroll in all 3 courses. Redesigning the courses will enhance student learning, offering undergraduates a sustained 4-year experience.

2023 – MORELAND, Anna, Ph.D., and REYNOLDS, Madeleine, Honors

Re-developing the Family Systems Course: Prioritizing Diverse Perspectives, Modern Families, and Experiential Learning – This project entails a complete overhaul/re-development of our graduate counseling course, Family Systems Theory. The course content and approach requires radical reconstruction in order to more effectively meet the needs of our students. Specifically, our students are increasingly working with a variety of “types” of families with a wide array of problems, and they need to effectively work with these clients from an approach that is more practically than theoretically oriented.

2023 – SCHMIDT, Christopher, Ph.D., Education & Counseling

Re-developing the Family Systems Course: Prioritizing Diverse Perspectives, Modern Families, and Experiential Learning – This project entails a complete overhaul/re-development of our graduate counseling course, Family Systems Theory. The course content and approach requires radical reconstruction in order to more effectively meet the needs of our students. Specifically, our students are increasingly working with a variety of “types” of families with a wide array of problems, and they need to effectively work with these clients from an approach that is more practically than theoretically oriented.

2023 – SCHMIDT, Christopher, Ph.D., Education & Counseling

COLLEGE OF LIBERAL ARTS AND SCIENCES - LIBERAL ARTS cont.

Incorporating Computational Methods in Graduate Quantitative Research Education in Communication - This proposal seeks to redesign a required communication graduate research course by introducing big data and computational methods. Students will: 1) gain familiarity with major computational methods currently available to communication research, 2) develop a conceptual understanding of and make critical assessment of each method, 3) learn how computational approaches could triangulate with other research methods to advance research, and 4) gain practical experience in incorporating computational methods in their research endeavor.

2023 – XU, Jie, Ph.D., Communication

Revamping Students' Evaluation Forms to Enhance Students' Learning - Counseling students are required to complete clinical courses at sites outside the campus and they are evaluated based on the Site Supervisor Evaluation Form (SSEF). The purpose of this minigrant is to request for funding to improve the SSEF. Improving the SSEF would ensure our students are learning (and being evaluated on) current best practices, such as evidence-based practice and the infusion of DEI in counseling.

2023 – YEE, Terence, Ph.D., Education & Counseling

Problems with Data: Using Real-world Challenges to Enhance Instruction for Regression Methods - Regression methods are generally taught by introducing and applying modeling strategies to clean, well- defined data sets. In practice, however, data sets are often messy, and standard analysis approaches may not apply. To better prepare students for handling non-routine analysis scenarios, I propose assigning weekly problems with significant data challenges. I propose using a combination of problem-based learning and content-based discussion boards in order to facilitate student learning, foster critical thinking, and encourage effective statistical communication.

2022 – BERNHARDT, Paul, Ph.D., Mathematics & Statistics

Engaging Social Justice in Quantitative Research in Communication - This proposal seeks to redesign an advanced, required Communication research course by applying a quantitative data analysis framework to the intersection of Communication and issues of social justice and social change. Students will generate new knowledge about social justice from real- world data sets, while developing skills such as communicating their findings through multimedia formats, learning to do data analysis, creating data visualizations (infographics), effectively collaborating in teams, and using quantitative data to engage in evidence-based advocacy for diversity, equity and inclusion.

2022 – LEVIN, Allyson, Ph.D., and KSIAZEK, Thomas, Ph.D., Communication

Building Discussion Skills in Students Through Student-Led ACS Seminars - The Augustine and Culture Seminar is usually facilitated by the instructor who asks open-ended questions to the students. However, this method routinely fails to engage quieter students, and it can be difficult to effectively assess how successful a discussion has been. This project proposes to research the Spider Web Discussion technique for seminar discussions in order to facilitate more equitable, student-led discussions and build identifiable discussion skills that can be more effectively assessed.

2022 – MCGUIRE, Elizabeth-Jane, Ph.D., Augustine in Culture Seminar Program

Creating a Database of Modules for Alignment of Lab and Lecture in General Chemistry - The aim of this project is to revise CHM 1131 and 1134 by restructuring topics, redesigning lectures, and introducing case studies into the curriculum that will support the future development of a 1-semester General, Organic, and Biological Chemistry course in collaboration with the M. Louise Fitzpatrick College of Nursing. These changes are intended to improve accessibility of chemistry to nursing students and illustrate the importance of chemistry in health care through problem-based medical case studies, discussions, and integrated lab components.

2022 – MYERS, Jessica, Ph.D., and MINBIOLE, Kevin, Ph.D., Chemistry

COLLEGE OF LIBERAL ARTS AND SCIENCES - LIBERAL ARTS cont.

Incorporation of Experiential Learning Method in a New "Air Pollution" Lab Course - This is an upper-level lab course designed to provide in-depth science learning goals of the department. In this course, students will collect and analyze real-world environmental data and it provides advanced levels of learning. The new experiential learning method in this new course will help the students to see the connections and relevancy with the real world and will transform the students to become life-long learners and continue to educate the community about care for the environment.

2022 – SHAKYA, Kabindra, Ph.D., Geography and the Environment

Data Visualization in Political Analysis - With this grant, the goal is to create a public web interface via the "Shiny" application in the open-source software R Studio, which allows students to create their own data visualizations with public data on political and economic variables. This will enhance students' learning experience by giving them (1) agency in creating data visualizations, (2) a tool for exploring their intellectual curiosities, and (3) more confidence in using quantitative data in their research.

2022 – WELDZIUS, Ryan, Ph.D., Political Science

In Depth Instruction of EEG in Cognitive Neuroscience (CBN4100): A Course Revamping – The goal of this project is to enable students to attain a degree of mastery at the end of the course that would be objectively assessed, by focusing on one technique (electroencephalography, EEG) in the laboratory portion of the course, rather than spending a short time on each cognitive neuroscience methodology. Students would take a hands-on approach to the research process, gaining invaluable experience.

2021 – DRUMMEY, Anna, Ph.D., Psychological & Brain Sciences

An Inquiry-based Approach Using Sets, Number Theory and Combinatorics – This proposal aims to apply an inquiry-based approach to teaching Foundation of Math I, a transition course in the curriculum that marks a shift away from the computational to the theoretical, with emphasis on proof writing. The approach will be deployed using a workbook containing definitions and problems from topics in set theory, number theory, and combinatorics. Classes centered on student presentations will rigorously train students in problem-solving, proof writing, and clear communication of mathematical ideas.

2021 – KAMAT, Vikram, Ph.D., Mathematics & Statistics

Creating a Database of Modules for Alignment of Lab and Lecture in General Chemistry – The goal of this project is to create a database of modules that will explicitly correlate the General Chemistry I and General Chemistry I Laboratory courses that are taught to approximately 700 students each Fall semester. The desired impact is to improve student outcomes in both courses.

2021 – KATZ LINKMEYER, Stephanie, Ph.D., Chemistry

Learning Centered Approach in Graduate Instruction of Spatial Techniques – This project aims to redesign portions of the graduate class, GEV 7041 GIS for Environmental Systems in order to align instruction and assessment for different levels of learning – theory, application, and practice. A modified scaffolding approach to learning of theory and practice based on flipped class model and a mastery approach to assessment will be utilized, as will units that are sequenced and that apply an iterative affirmative assessment to the learning of theory.

2021 – KREMER, Peleg, Ph.D., Geography & the Environment

Compiling and Creating Student-Centered Online Materials and Resources for Heritage Learners of Spanish – The main goal of this project is to create and compile affordable, engaging, and interactive online materials and resources for Heritage Language Learners (HLLs) of Spanish. The materials will serve to enhance HLL student learning of their own language, promote language maintenance, and foster diversity and inclusion in our institution.

2021 – LENARDON, Maria, Ph.D., Romance Languages & Literatures

COLLEGE OF LIBERAL ARTS AND SCIENCES - LIBERAL ARTS cont.

Honors - Shaping a Life Initiative – The purpose of this project is to take the three distinct “Shaping” courses and develop them into a cohesive learning community. This will be done by linking the courses, creating extracurricular activities, and engaging with program alumni. Students will find further development through peer and alumni mentorship in addition to increased cohesive engagement.
2021 – MORELAND, Anna, Ph.D., and HIDORE, Kimberly, Ph.D., Honors

Flipped Learning in a Clinical Assessment in Counseling Course – The aim of this project is to apply the use of flipped learning in the teaching of clinical assessment knowledge and skills in CHR 8855 Assessment and Appraisal in Counseling using educational videos viewed outside of class. Removing lecture from face-to-face class time will free up time for the use of authentic and experiential learning activities that facilitate student exploration and application of course concepts in real-world clinical practice.
2021 – WAHESH, Edward, Ph.D., Education & Counseling

Design and Implementation of a General Biology Peer Mentoring Program – The goal of this project is to create a peer mentoring program that will complement the gateway General Biology course sequences and provide a space for students to collaborate with peers to review course content and engage in active learning. Peer mentoring will ideally improve course retention, increase student success in the course, and expand the diversity of graduates found within the major. Peer mentors will be trained in leadership and pedagogy.
2021 – WINTERTON, Christina, Ph.D., and CHAPMAN, Samantha, Ph.D., Biology

M. LOUISE FITZPATRICK COLLEGE OF NURSING

MEDI - Metrology Education & Dosage Instruction – This project develops and pilots a focused AI tutoring agent to support nursing students in mastering medication calculation. Built from faculty-approved content, the agent provides unlimited practice, step-by-step reasoning, and immediate feedback. Implemented in NUR 3131 Applied Pharmacology course and aims to strengthen accuracy, confidence, and clinical readiness while reducing remediation demands. Students will practice independently, identify areas of confusion, and build stronger metrology skills through guided, low-stakes engagement.
2026 – HALLOWELL, Sunny, Ph.D., APRN, PPCNP-BC and MENDEZ, Jim, Ph.D., CRNP, ANP-BC, M. Louise Fitzpatrick College of Nursing

Transforming Nursing Research: An Innovative Mixed-Methods Course for PhD Students – This project develops an innovative mixed-methods research course for PhD nursing students, addressing a critical gap in the curriculum. Using a learner-centered, flipped classroom model, it integrates case-based learning, research design simulations, data integration workshops, AI-assisted analysis, and advanced data visualization. These strategies will enhance students’ ability to design, conduct, and critically evaluate mixed-methods research, preparing them for high-impact, interdisciplinary studies that advance nursing science and improve healthcare outcomes.
2025 – COPEL, Linda, Ph.D., RN,PMHCNS,BC,CNE,ANEF,NCC,CGP,FAPA, POGORZELSKA-MAZIARZ, Monika, Ph.D., MPH, CIC, FAPIC, FSHEA, FACE, and RICE, Bridgette, Ph.D., MDiv, APRN, FAAN, M. Louise Fitzpatrick College of Nursing

Revision of the Nursing PhD Statistics Course Sequence – This course revision will advance a cohesive course plan to foster deep, practice-based learning in two sequential, analytical graduate courses through updated content, interactive, low-stakes, formative assessments, and robust summative assessments. The comprehensive course design aims to help doctoral students develop, practice, and apply current statistical methods and practices in the nursing profession, research, and education contexts using project- and case-based learning.
2024 – KELLY, Michelle, Ph.D., CRNP, CNE, FAANP, FAAN, M. Louise Fitzpatrick College of Nursing

M. LOUISE FITZPATRICK COLLEGE OF NURSING cont.

A Thousand Paper Cuts: Using Video Vignettes to Improve Recognition and Response to Microaggressions among Undergraduate Nursing Students – The purpose of this project is to revise the curriculum of Nursing 1105 – Social Justice and Health Equity, a required foundational course that all first-year nursing students take. This course revision will help address students' difficulty in recognizing microaggressions, and great discomfort responding when microaggressions are recognized, by engaging students with video vignettes set in the healthcare setting, guided by debriefing protocols. This proposed revision will help nursing students develop, practice, and receive feedback on two core competencies, that is, inclusive care, and effective communication.

2024 – MACKENZIE-GREENLE, Meredith, Ph.D., RN, ANP-BC, CNE, BRADLEY, Patricia, Ph.D., RN, FAAN, FURMAN, Gail, Ph.D., RN, CHSE-A, M. Louise Fitzpatrick College of Nursing

Global Health Nutrition: Leveraging Food as Medicine – This project aims to enrich the undergraduate, cross-disciplinary Global Health minor curriculum by focusing on global health, nutrition, and experiential learning to deepen students' understanding of the interconnectedness between food, nutrition, and global health. The new course will also help students consider how they might improve health through food in clinical practice, public health programming, working with patients and their families.

2024 – WHITEHOUSE, Christina, Ph.D., AGPCNP-BC, CDCES, FADCES and WEISSINGER, Guy, MPhil, Ph.D., RN, M. Louise Fitzpatrick College of Nursing

A Virtual Quantitative Methods Bootcamp – Ph.D. students' knowledge and application of research methods often decreases from their previous academic degree. This frequently creates challenges for PhD students in quantitative research methods courses and hinders the learning of advanced knowledge. In January 2022, an informal 6-hour "Research Basics Bootcamp" was piloted prior to students enrolling in two research methods courses. This proposed project will formalize objectives, refine the content, and develop an objective evaluation plan of this experiential learning experience.

2022 – CANTRELL, Mary Ann, Ph.D., M. Louise Fitzpatrick College of Nursing

A Moral Distress Mitigation Program in Undergraduate Nursing Practicum: Development and Evaluation - Moral distress has a direct impact on quality of patient care and desire to leave bedside nursing. It is essential to enhance current nursing curriculum training to educate nursing students on moral distress and coping strategies. The purpose of the project is to develop, implement, and evaluate a learning program to understand, identify and decrease MD, increase perceived ethical confidence and moral competence, and promote resilience among undergraduate students in the clinical setting.

2022- QI, Bing Bing, Ph.D., RN, and PARKINSON, Jaclyn, MSN, RN, PCCN, M. Louise Fitzpatrick College of Nursing

Transforming Learning in Essentials of Nursing Practice to Develop Clinical Judgment Skills - The goal of this project is to foster undergraduate nursing students' clinical judgment and Next Generation NCLEX (NGN) preparation to ensure that Fitzpatrick College of Nursing graduates are adequately prepared to provide safe and effective patient care. This will be accomplished by revising a current unfolding case study into an NGN evolving scenario, embedding the evolving scenario into an electronic medical record format, and developing associated NGN test items.

2022 – ROSS, Jennifer, Ph.D., RN, CNE, and SCHEVE, Ann, MS, RN, M. Louise Fitzpatrick College of Nursing

Bridging the Classroom-Clinical Gap: Using a Structured Clinical Reasoning Model to Develop Clinical Judgment Skills – The aim of this project is to enhance students' critical reasoning and ability to synthesize and apply nursing concepts to clinical situations. The Clinical Judgment Measurement Model will be utilized to help students identify the necessary steps in making a safe clinical judgment and to develop case studies to guide the students through problem-based learning to enhance both understanding and application of the course material.

2021 – MACKENZIE-GREENLE, Meredith, Ph.D., RN, ANP-BC, CNE, M. Louise Fitzpatrick College of Nursing

VILLANOVA SCHOOL OF BUSINESS

Integrating AI into Federal Income Tax: A Capstone Project on International Tax – Building on a Fall 2025 assignment informed by VITAL materials and Big 4 insights, this capstone project integrates AI into ACC 2360 through a Bloom’s Taxonomy framework, supplemented by a mini-AI case study from a Big 4 firm. Students will use AI to analyze complex international tax issues disclosed in public U.S. and novel Irish financial statements. They will then defend their analysis and reflect on AI’s benefits and limitations in a final presentation.

2026 – GRANT, Brian, Ph.D., Accounting & Information Systems

AI-Assisted Tax-Aware Investment Portfolio Optimization – This project develops a case study for MAC 8201 (Taxes & Business Strategy) in which students build competencies in AI-assisted investment planning. Students construct optimized investment portfolios from approximately 50 options spanning the textbook’s seven savings vehicle categories, each with distinct risk, return, and tax characteristics. Activities are designed around four core competencies (understanding AI in business, prompt design, critical review, and professional judgment) rather than around any specific AI platform, ensuring sustained pedagogical relevance.

2026 – WATSON, Luke, Ph.D., CPA, Accounting & Information Systems

Prompt Engineering & Generative AI – Teaching generative AI (GenAI) is challenging because many of the concepts are difficult to communicate. One of those concepts is “prompt engineering” – the way we interact with large language models (like ChatGPT) to generate new text, code, images, video and even music. This proposal focuses on how we can improve the way we teach prompt engineering to enable students to better understand how GenAI can help them create new text, code, images, video and music.

2025 – ANDRIOLE, Stephen, Ph.D., Accountancy & Information Systems

ACC 2430 Auditing – A Course Redesign – This project will redesign ACC 2430 Auditing. The redesign will flip the classroom to foster greater engaged student learning by creating video content and pre-class assignments, structuring class sessions as a working lab to: 1. Consider current issues and apply theory to practice; 2. Work through practice problems and cases; and 3. Engage with professionals via live discussions as well as new technologies. Importantly, the course will feature AI, providing our students with an opportunity to better understand its uses and shortcomings.

2025 – DOWNEY, Denise, Ph. D., Accountancy & Information Systems

MSF 8612: Investments – This project seeks to develop a new course for VSBs' Masters of Science in Finance program. As a STEM-designated program that has recently been accepted into the Chartered Financial Analyst (CFA) Institute University Affiliation Program, MSF classes must provide students with a rigorous mathematical foundation in financial theory *and* cutting-edge knowledge of how theory is put into practice by financial professionals. My project will integrate new teaching and learning approaches to meet this lofty goal.

2025 – GRIFFIN, Thomas, Ph.D., Finance & Real Estate

From Passive to Interactive: Improving Formative Learning for Innovation Management – This project enhances the online learning experience in MBA 8730 by developing interactive Adobe Storyline lessons on creativity and innovation management. These modules replace passive readings and videos with engaging, formative assessments, improving student comprehension and participation. By integrating interactive content into the Learning Management System, this project ensures accessibility, fosters deeper learning, and aligns online instruction with in-person engagement. The project will enhance student learning outcomes and be fully implemented by Fall 2025.

2025 – MELOCHE, Alysha, Ph.D., Management & Operations

VILLANOVA SCHOOL OF BUSINESS cont.

Unlocking Data-based Curriculum: Crafting an SPSS Guide and a Dataset Hub for Future Marketing Analysts – This project empowers marketing analytics students through two key objectives: creating a user-friendly SPSS manual and developing a repository of curated customer perception datasets from real-world business scenarios. The SPSS manual supports asynchronous learning by providing step-by-step guidance for students to independently navigate data analysis and serves as a quick reference tool, enhancing their proficiency with statistical software. Meanwhile, the repository addresses the challenge of identifying relevant data amidst the explosion of information by offering curated, meaningful datasets. Together, these resources enhance student's practical data-handling capabilities and retain their learning beyond the classroom to strengthen their capability in overall data-driven learning curriculum.

2025 – RATHEE, Shelly, Ph.D., Marketing

Automation of the Paid Search Data Mining Business Simulation – The goal of this project is to strengthen students' data analytical skills via engagement with web-based simulation exercises. This simulation project will be included across the Business Analytics course sections. A Web portal version of the simulation will be developed to give other faculty self-serve access thus ensuring sustainability and ease of access and use.

2024 – COATES, Nathan, Ph.D., Management and Operations



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