## VITAL Instructional Minigrant Awards 2024-2025

Join us in congratulating our faculty colleagues who were awarded instructional minigrants to implement their innovative, learning-focused projects.

Dr. Nathan Coates, Management & Operations, VSB: *Automation of the Paid Search Data Mining Business Simulation.* Create a business simulation where students build models to fine tune bids for paid search advertisements, which reinforces their Excel modeling and data mining skills. Automate the simulation by building a web version.
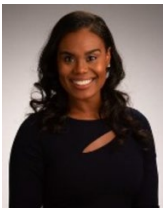
Dr. Amber Haley, Education & Counseling, CLAS: *Redesigning the Foundations of College Counseling Course: A Unique and Necessary Course for Counselors.* Develop complementary learning materials for a college counseling course. Create case scenarios and tools for practical application with real-world clients that are centered in the counseling field, rather than business examples.

Dr. Jacky Huang, Chemical & Biological Engineering, COE: *Integrate the Emerging AI Techniques in the Course Chemical Process Control.* Integrate A.I. techniques into the Chemical Engineering program, focusing on Chemical Process Control. Develop three modules covering A.I. coding, model parameter estimation, and controller tuning. Through interactive simulation platforms, students will enhance their understanding and confidence in tackling math-intensive materials.

Dr. Jaisy Joseph, Theology & Religious Studies, CLAS: *Strengthening Ministerial Competencies for a Synodal Church.* Responding to Pope Francis' vision for a more synodal church, the revised course will help ministry students develop the competencies of active listening, communal discernment, and collective action. Rooted in the Conversation-in-the-Spirit model, the course will be guided by the question-what does it mean to use these competencies in the context of various ecclesial wounds? Wounds include racial divisions, ministry among LGBTQ+ persons, and ministry amidst ecological crises.

Dr. Michelle Kelly, M. Louise Fitzpatrick College of Nursing: *Revision of the Nursing PhD Statistics Course Sequence.* Revise both Statistical Analysis I and II, foundational courses in the Nursing PhD curriculum. Revising both courses simultaneously will advance a cohesive course plan to foster success in the subsequent analytical courses. The revision will enhance graduate student experiences, utilize open-educational resources, and engage students with practice-and case-based learning, preparing PhD students to be successful researchers.

Drs. Meredith MacKenzie-Greenle, Patricia Bradley, & Gail Furman, M. Louise Fitzpatrick College of Nursing: *A Thousand Paper Cuts: Using Video Vignettes to Improve Recognition and Response to Microaggressions Among Undergraduate Nursing Students*. Create video vignettes illustrating common microaggressions and potential responses by healthcare worker bystanders, along with debriefing protocols to increase students' awareness of, and comfort with addressing microaggressions in the healthcare setting.

Dr. Dron Mandhana, Communication, CLAS: *Integrating Artificial Intelligence (A.I.) in Communication.* Incorporate a one-credit module on utilizing A.I. for research and writing to complement and support existing graduate and undergraduate communication research methods courses. Students will develop proficiency in utilizing A.I. for mining literature, streamline the literature review process, enhance scholarly writing, and learn about the ethical use of A.I. in research and writing.

Dr. Colleen Mitchell, Augustine and Culture Seminar Program, CLAS: *Augustine and Women Faculty Workshop.* Provide professional development for ACSP faculty to read and discuss Kate Cooper's book *Queens of a Fallen World. The Lost Women of Augustine's Confessions* and develop new materials and strategies for teaching the subject.

Drs. Kaitlyn Muller & Peter Muller, Mathematics & Statistics, CLAS: *Reviving and Redesigning MAT 4410: Mathematical Modeling.* Revitalize a course to provide students with another applied mathematics offering. This will give students the opportunity to connect math with other disciplines, experience project-based learning, gain computing experience, and practice explaining mathematics in written and oral fashion. Expose students to mathematics' role in society.
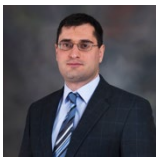
Dr. Sergey Nersesov, Mechanical Engineering, COE: *Integration of a Hands-On Project into ME 5206 Aircraft Design.* Augment a primarily lecture-based course with a hands-on project. Enhance undergraduate engineering students' learning of aircraft design by designing, testing, and flying an airplane.

Dr. Lauri Oliver, Engineering Entrepreneurship, COE: *Development of a New Graduate Course: Research Driven Innovation with NSF I-Corps.* Design and implement a new graduate course in research innovation grounded in the NSF I-Corps process. Offer experiential learning opportunities to identify market needs, validate ideas through customer feedback and navigate the complexities of the entrepreneurial ecosystem, leading to career readiness in academics or industry.

Drs. Peter Palenchar & Michael Heinrich, Chemistry & Biochemistry, CLAS: *Integrating the Use of Spreadsheets into the General Chemistry Laboratory Courses*. Integrate the use of spreadsheets to familiarize students with using spreadsheets to generate graphs and conduct computational data analysis.

Drs. Cristina Percoco & Larisa Colón-Rodriguez, Spanish, CLAS: *Redesigning SPA1122 as a Content-Based Course.* Redesign SPA1122, a multi-section, grammar- and vocabulary-based language course, into a proficiency-oriented, content-based course emphasizing cultural fluency through instructor-developed materials.


Dr. Rebecca Rivard, Biology, CLAS: *Use of Educational Escape Games to Improve Student Critical Thinking and Engagement with Technical Content*. Use A.I. in designing educational escape games to enhance undergraduate nursing students' engagement and critical thinking skills while mitigating cognitive load and assessing content comprehension.

Dr. Jennifer Santoro, Geography and the Environment, CLAS: *Data Sleuthing in Geospatial Education: Intentionally Integrating Project Organization and File Management into the Introductory Curriculum*. Redesign a required GIS introductory course to 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.

Dr. Javad Siah, Physics, CLAS: *Enhancing Two Introductory Physics Laboratory Courses*. Enhance the undergraduate students' learning experiences in the laboratory by modernizing experiments, building cohesion between lectures and labs, developing new experiments that foster students' physics-thinking, modeling abilities, problem-solving and critical data analysis.
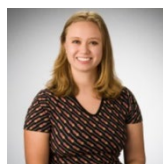
Drs. David Jamison, Stephanie Walkup & Liesl Klein, College of Engineering: *Redevelopment of First-Year Engineering Design Course: Integration of Project-Based Learning and Social Justice Instruction*. Redesign required engineering design course for first-year Engineering students to address logistical and learning challenges that exist with the current format of the course. Inclusion of project-based learning for engineering design as well as a focus on new learning outcomes related to teamwork, communication, professional responsibility, and social justice.

Drs. Christina Whitehouse & Guy Weissinger II, M. Louise Fitzpatrick College of Nursing: *Global Health Nutrition: Leveraging Food as Medicine*. Develop a new Global Health minor course that deepens understanding of the interconnectedness between food, nutrition, and global health to help students consider how to improve health through food in clinical practice, public health programming, working with patients and their families.

We extend our gratitude to the members of the VITAL Minigrant Review Committee for their thoughtful, criteria-based peer review of the grant proposals and their continued service.

- Patricia Bradley, M. Louise Fitzpatrick College of *Nursing*
- Irene Kan, Psychological & Brain Sciences
- Mary T. Kelly, Economics
- Frank P. Maloney, Astrophysics & Planetary Science
- James C. O'Brien, Mechanical Engineering
- Bruce Pollack-Johnson, Mathematics & Statistics
- Edward Wahesh, Education & Counseling

Link to program details

All photographs were taken from Villanova University's website.

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