CURRICULUM VITAE

JUSTIN M. GREENLY, Ph.D.

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Experienced engineering educator, department leader, and student mentor: Proven record in delivering outstanding technical formation for students, building new programs, developing robust internal and external partnerships, and promoting the development of proficient and virtuous young professionals.

FRANCISCAN UNIVERSITY OF STEUBENVILLE Steubenville, OH
DEPARTMENT OF ENGINEERING AND COMPUTING
MECHANICAL ENGINEERING PROGRAM

2024-CURRENT	FULL PROFESSOR
2022-CURRENT	CHAIR, DEPT. OF ENGINEERING + COMPUTING
2020-2024	ASSOCIATE PROFESSOR
2014-2020	ASSISTANT PROFESSOR

COURSES TAUGHT FOR MECHANICAL ENGINEERING
Fluid Mechanics; Intro to Engineering and Design; Intro to Engineering Analysis; Engineering Analysis; Rigid Body Statics and Dynamics; Strength of Materials; Engineering Thermodynamics; Special (Research) Projects in Engineering; Intro to Chemical Engineering Analysis

COURSES TAUGHT FOR MATH AND PHYSICS
Calculus I, II, and III; Matrix Theory I and II; Differential Equations; Survey of Physical Science

RESEARCH INTERESTS
Gothic Cathedral Architecture and Engineering; Ultrasonic Cavitation; Engineering Education; Energy/Exergy Analysis; Microalgal Biofuels; Hydrothermal Processing

AWARDS
- Franciscan University Excellence in Teaching Award (2019)
- Elizabeth Ann Seton Outstanding Faculty Mentor Award, GRACE (Gallery of Research, Artistry, and Community Engagement) Symposium (2018)

KEY CONTRIBUTIONS
- **Inaugural chair of the Department of Engineering and Computing**, leading start-up efforts for new BS degree programs in Mechanical and Software Engineering including:
    - Building and managing a team of 10+ faculty, staff, and adjunct instructors
    - Leading extensive planning for new academic space including design of seven laboratories and selection of related equipment
    - Establishing (~$100k) annual budget for equipment, software, consumables, student work
    - Collaboration with adjacent academic departments (physics, math, chemistry, etc.)
    - Troubleshooting issues related to new programs (curriculum pathways, course development, space and staffing issues, enrollment projection, etc)
    - Preparing materials in preparation for initial ABET accreditation review

- Initiated **Gizmo Engineering and Education Project and Expo**, a collaborative project for engineering and education students, culminating in an annual community event displaying devices ("gizmos") designed to teach science and technology concepts
    - Supervised design and building of interactive devices for teaching ("Gizmos"), which have been donated to community partners (classrooms, scout troops, etc)
    - Originated and hosted seven annual community expos between 2015 – 2023

- Fostering **internal and external relationships** to support the Department of Engineering and Computing and its students
    - Established and maintained partnerships with industry representatives and program supporters to promote student internships, new projects and courses, and solicit financial/equipment gifts.
    - Recruited and fostered relationships with the School of Natural and Applied Science Advisory Board subcommittee for Engineering and Computing
    - Coordinated external speakers on various disciplines of engineering

- **Additional Faculty Committees:**
    - Promotion and Tenure Board (2022 - current)
    - Advising to Architects and University Facilities Staff for New Construction (2022 – 2024)
    - Personnel Advisory Committee (2023 – current)
    - Academic Innovation Taskforce (2021)
    - University Faculty Council (Secretary, 2017 – 2019)
    - Space Planning and Utilization (2016 – 2019)
    - Educational Planning (2015 – 2018)

PUBLICATIONS

- Greenly, J. Domus Dei et Porta Caeli: House of God and Gate of Heaven *(on the technical accomplishments and theological motivations that gave rise to the Gothic Cathedrals),* Conference Paper for the Christian Engineering Society, George Fox University in Newberg, Oregon, Presented July 2024.
- Reister, M., Greenly, J., & Pohlmeier, R. (2022). The Gizmo Project: Collaborative and Experiential Learning to Benefit All. Transformative Dialogues: Teaching and Learning Journal at The Pennsylvania State University, 15(1).
- Stephen Frezza and Justin Greenly, "Identifying Core Engineering Virtues: Relating Competency and Virtue to Professional Codes of Ethics." Proceedings of the ASEE Virtual Conference, July 2021.
- Writing and building Open Educational Resource (OER) material for an Ordinary Differential Equations Course in a small team of mathematics faculty and staff. This effort to create and curate OERs is funded by the Ohio Dept. of Ed. Innovation Grant through a partnership with North Central State College, The Ohio State U., and Ohio Dominican U. Work completed in 2019.
- Students Emily Johnson, Daniel Deal, and Stephen Bolster presented "3D Printed 6-Axis Robotic Arm" Gallery of Research, Artistry, and Community Engagement (GRACE), Steubenville, OH, April 2019
- Reister, M. & Greenly, J.M. (2018, November). Elevating STEM through a unique collaboration: Extraordinary science through gizmos! Council for Exceptional Children-Teacher Education Division National Conference, Las Vegas, NV.
- Greenly, J.M., Reister, M., Manzer, J., & Burke, K. (2018, April). Gizmo collaboration with student voices. Gallery of Research, Artistry, and Community Engagement (GRACE), Steubenville, OH.
- Reister, M. & Greenly, J. M. (2018, March). Extraordinary Science through Gizmos: Elevating STEM for Students with Special Needs through a Unique Collaboration. American Council on Rural Special Education (ACRES), Salt Lake City, UT.
- Student Paul Helgemo presented poster "Design, Fabrication and Testing of a 3D Printed Centrifugal Pump", American Institute of Chemical Engineers Annual Conference, October 2017, Minneapolis, MN
- Greenly, JM, Tester, JW. Ultrasonic cavitation for disruption of microalgae, Bioresource Technology. May 2015; 184: pp. 276-9
- Poster "The Use of Power Ultrasound for Harvesting and Extraction of Microalgal Lipids" at the 1st International Conference on Algal Biomass, Biofuels, Bioproducts, July 2011

DEGREES

2014 Cornell University, Ithaca, New York
Doctor of Philosophy in Chemical and Biomolecular Engineering
School of Chemical and Biomolecular Engineering
Advisor: Jefferson W. Tester, Ph.D.
Internal Minor: Sustainable Energy Systems
External Minor: Biological and Environmental Engineering

2012 Cornell University, Ithaca, New York
Masters of Science in Chemical Engineering (Awarded *in curso*)

2008 Bucknell University, Lewisburg, Pennsylvania
Bachelor of Science in Chemical Engineering, *summa cum laude*
Donald F. Othmer Chem. Eng. Academic Excellence Award
President's Award for Distinguished Academic Achievement

OTHER TEACHING and PROFESSIONAL EXPERIENCE

2016-2022 Visiting Assistant/Associate Professor at Cornell University, Six-week summer session: Engineering Thermodynamics course in the School of Mechanical and Aerospace Engineering (2016, 2018, and 2020) and Multivariable Calculus for Engineers in the Department of Mathematics (2020, 2021, and 2022)

2014 Consulting for clients in the energy industry on corrosion issues relevant to the processing of brines and related wastewaters at sub- and supercritical conditions.

2008-2014 Ph.D. Student and Researcher

Research and Project Experience:

- Experimental and theoretical approaches to the utilization of ultrasonic cavitation for the rupture of algal cells and release of lipid products
  - Experimental application of cavitation across variables such as microalgae species, cell concentration, dissolved gas content, and acoustic amplitude
  - Numerical modeling of effects of cavitational collapse
- Hydrothermal conversion (liquefaction) of lipid feedstock: Experimentation with high pressures, high temperature water (in near- and supercritical state) as solvent, catalyst, and reactant for lipid conversion
- Provided supervision and training, and to undergraduate laboratory assistants
- Established Tester group experimental and analytical laboratories in Biofuel Research Lab and in Snee Hall at Cornell University, established group web-page, and coordinated lab safety training and compliance for 15-member group

Teaching Experience:

- Lectured and assisted in courses with topics including Analysis of Sustainable Energy Systems (Modules in Biofuels, Nuclear Energy, Wind Energy), Thermodynamics, Kinetics, Supercritical Fluid Engineering, Biofuels and Bioenergy, Separations
- Coordinated 40 undergraduate/graduate students for week-long Sustainable Energy Fellowship program at Cornell, June 2010 (Participant at U. of Michigan in 2009)

2008 Summer Process Research Internship, ExxonMobil, Clinton, New Jersey. Research in upgrading of heavy crudes with novel catalytic pathways: Investigated radical chemistry associated with intermetallic hydrides and co-catalysts with microwave stimulation. High throughput experimentation with gas chromatography.

2007 Summer Process Engineering Internship, Air Products & Chemicals, Allentown, Pennsylvania. Study for customer: Worked in collaboration with engineers to investigate natural gas liquefaction at sea. Utilized the AspenTech process simulator to evaluate the sensitivity of power requirements to varying refrigerant compositions.

2006 Institute for Leadership in Technology and Management, Bucknell University, Lewisburg, Pennsylvania. Studied business, ethics, communication, critical thinking, teamwork, and leadership. Concurrent consulting project assessing various outpatient data capture technologies at Geisinger Health System and presented final cost-benefit analysis.

PROFESSIONAL and COMMUNITY AFFILIATIONS

- Member, Christian Engineering Society, 2017 – present
- Member, Knights of Columbus, 2011 – present
- Volunteer for Trail Life Troop in Steubenville
- Member, American Society for Engineering Education, 2016 – 2020
- Member, Engineers' Society of Western Pennsylvania, 2016 – 2020
- Board of Directors, Bucknell Engineering Alumni Association, 2010 – '13 & '18 – '21
- Passed Fundamentals of Engineering Examination for Chemical Engineering, 2008
- Tau Beta Pi, Bucknell Chapter, past member
- Eagle Scout (2003)

SELECTED TRAINING

2016 SOLIDWORKS Essentials Four Day Training at 3DVision Technologies
Mechanical design automation software for parametric models of parts and assemblies

2015 Project Catalyst *(How to Engineer Engineering Education)*
Bucknell University, Lewisburg, Pennsylvania
Three-day workshop on principles of instructional design: instructional objectives, active learning, inductive teaching, flipped classroom, assessment, classroom technology, rubrics