Honors Opportunities

Poly Engineering program 2017-2018

In addition to the requirements specified by the Barrett Honors College, the Engineering and Manufacturing Engineering programs at The Polytechnic School in the Ira A. Fulton Schools of Engineering offer honors students several opportunities for honors credit and thesis research.

EGR Faculty Honors Advisor

Micah Lande, Ph.D.
Peralta Hall #335C
480-727-1063
Micah.Lande@asu.edu
poly.engineering.asu.edu

Honors Academic Coordinator

Brady Hamilton
Academic Center
480-727-5539
Brady.Hamilton@asu.edu
barrettpoly.asu.ed

Honors Course Credit

Most courses in EGR are offered for honors credit through the honors enrichment contract. Students wishing to receive honors credit should confer with the course instructor at the beginning of the semester in order to develop a mutually acceptable plan for the honors contract activity. Most honors contracts involve either a project that extends the ideas and techniques covered in the course or outside research on topics relevant to the course work. Students have the responsibility to apply for the honors contract through the Barrett Honors College. The Honors College contacts the instructor to approve the contract only after the student has initiated the process. Some courses have honors sections. It is anticipated that honors sections will be added to more EGR courses in upcoming semesters.

The Honors Thesis

Students graduating from the Barrett Honors College must complete an honors thesis, which is a document that describes a body of research undertaken by the student. Students should start looking for a research topic and thesis advisor during the second semester of the sophomore year or the first semester of the junior year. Honors students may take advantage of the Fulton Undergraduate Research Initiative, which provides a stipend and a small amount of funding for undergraduate research. Honors students may use their FURI-funded project as their honors research. For more information on the FURI program, please visit the FURI website: http://www.fulton.asu.edu/fulton/departments/furi. Philosophically, the honors thesis should represent a body of work performed independently by the student under the guidance of a faculty mentor. The honors research MUST be work performed above and beyond the normal coursework required for the BSE degree, and it MUST be work completed individually by the student. The senior capstone design project or other projects done as a normal part of a course are not eligible to be used as the honors research. Students are encouraged to seek out a mentor early so that the honors research can be clearly defined well in advance of the senior year.

Recent Honors Theses Topics:

- *A Supernumerary Wearable Soft Robotic Arm for Task Execution Assistance*
- *Parent Roles in Young Making: Informing Implications for Making in Museums*
- *Phantom Forces Haunting Free Body Diagrams: Misconceptions in Statics & Dynamics*
- *Jaipur Prosthetic Foot Fatigue Machine*
- *Leadership Characteristics within the Making Community*
- *Measuring Air Quality Using Wireless Self-Powered Devices*

Faculty & Research Interests

Students looking for engineering and manufacturing engineering program faculty members to supervise their honors theses can review the following list.

Dan Aukes	robotics, design, manufacturing and simulation
Bruno Azeredo	advanced manufacturing
Jennifer Bekki	modeling/analysis of manufacturing systems, discrete event simulation, engineering student persistence, educational data mining/learner analytics, online learners
Dhruv Bhate	additive manufacturing, lattice materials, predictive modeling, biomimetic design
Samantha Brunhaver	career decision-making and identity formation of engineering students and engineers, engineering pedagogy (especially in design and mechanics)
Adam Carberry	impact of student characteristics and pedagogical approaches on student beliefs and learning in engineering education
Yan Chen	design, modeling, control of mechatronic systems; energy optimization, estimation, control of (electric/hybrid) vehicle systems; over-actuated mechanical/electrical systems
Brooke Coley	engineering education, mental health and social justice, virtual reality as a tool for developing empathetic and inclusive mindsets, hidden populations in engineering education, innovation for more inclusive pedagogies
James Contes	reducing aerodynamic and rolling resistance forces, improving fuel economy and vehicle efficiency
Scott Danielson	engineering mechanics, engineering education, manufacturing
Jerry Gintz	programmable automation control systems, distributed control systems, advanced motion control, advanced manufacturing techniques
Mark Henderson	social entrepreneurship & technology solutions for the developing world, product development & solutions to everyday issues, engineering design methods
Laura Hosman	information & communications technology, international development, innovation and entrepreneurship, quality of life, public policy, natural resources / environment, renewable energy/solar energy
Kiril Hristovski	nanomaterial synthesis & environmental applications and implications, development/ engineering/management of environmental systems for developing countries
Nathan Johnson	alternative energy, micro-grids, building energy control, designing for sustainability, techno-economic modeling, global development
Shawn Jordan	context in design, virtual teams, human-centered design, cross-disciplinarity, creativity, innovation, informal engineering education, K-12, STEM/STEAM
AM Kannan	PEMFC, DMFC & AFC fuel cells, SLA & Li-ion batteries, DSSC & CSP, Solar
Darshan Karwat	climate, energy, social justice
Nadia Kellam	engineering education research, narrative research, emotions in student learning, stories, systems thinking, design thinking, arts in engineering, STEAM
Chen-Yuan Kuo	control, system dynamics & computer simulations
Micah Lande	making & prototyping, design thinking, people-centered innovation, engineering education, vocational pathways, manufacturing STEM outreach, entrepreneurship
Sharon Lewis	simulation, operations research, manufacturing
Jeremi London	engineering education, cyberlearning technology in STEM, science policy issues in STEM cyberlearning environments, simulation & modeling tools
Abdel Mayyas	advanced automotive power train systems integration and control, hybrid electric vehicle thermal management design, light weight vehicle design
Ann McKenna	cognitive and social processes of design, design teaching and learning
Pavlos Mikellides	space vehicle propulsion systems

Thad Miller	environmental ethics, science and technology, science policy, socioecology, transdisciplinary research, sustainability education
Darryl Morrell	engineering pedagogy, engineering program development, stochastic decision theory
Changho Nam	development of nonlinear reduced order aerodynamic/aeroelastic models using a new RMI/ERA
Panos Polygerinos	mechatronics, wearable robotics, soft robotics, medical robotics, sensing, mechanical design
John Rajadas	fluids, thermal sciences
Sangram Redkar	nonlinear dynamics & control, interial navigation & tracking
John Robertson	semiconductor fabrication technology, strategic development of technology
Bradley Rogers	engineering in developing world, conventional & alternative energy conversion systems, biofuel systems, heat transfer, thermodynamics, fluid mechanics
Karl Schultz	
Angela Sodemann	manufacturing, mechatronics, robotics, machine learning, & artificial intelligence
Kenan Song	materials analysis, materials development, mechanics of composite materials, nanotechnology, thin film materials
Thomas Sugar	wearable robotic systems: prostheses, orthoses, exoskeletons, walking & running gait
Wenlong Zhang	body sensor network and gait analysis, wearable assistive robots, human-robot interactions, networked and multi-agent systems
Jeff Wishart	alternative fuels, alternative vehicles, energy efficiency technologies, energy, transportation

Milestones

Find deadlines posted at https://barretthonors.asu.edu/academics/thesis-and-creative-project.

Spring 2018 Thesis/Creative Project Deadlines
Priority Prospectus Due Date: April 5, 2017
Final Prospectus Due Date: September 15, 2017
Defense Reporting Form Due: March 9, 2018
Recommended Defense Completed: April 6, 2018
Final Submission Due (signed signature title page, abstract, and digital submission): April 20, 2018

Fall 2018 Thesis/Creative Project Deadlines
Priority Prospectus Due Date: November 3, 2017
Final Prospectus Due Date: February 16, 2018
Defense Reporting Form Due: October 12, 2018
Recommended Defense Completed: October 26, 2018
Final Submission Due (signed signature title page, abstract, and digital submission): November 16, 2018

Checklist for Honors Theses

The following provides general guidelines. Please check with the Barrett Honors College guidelines for updated information.

- Meet with the Honors Academic Coordinator Brady Hamilton, for your mandatory junior advising to go over the thesis process.
- The student is responsible for formulating the thesis topic, for requesting faculty to serve on the committee, to submit the necessary forms to the Honors College, and to inform the chair of the committee of all Honors College requirements and deadlines.
- Thoroughly review the Thesis/Creative project handbook and reference it throughout your project. Be aware of the deadlines and expectations of the project.
- Brainstorm ideas for your topic. Think of topics that you have a passion for and that may assist you with future goals. The students can start thinking of thesis topics as early as their freshman and sophomore years. The students should definitely have a clear plan of the thesis topics or research by their junior year.
- Investigate the research areas of the faculty in your department or in a related field and Create a list of questions and topic ideas to discuss with a potential thesis director.
- Set up a meeting with a potential thesis director. Refer to the Faculty Honors Advisor in your department, if you need additional assistance.
- Once you have a confirmed thesis director, register for the appropriate thesis course(s) (XXX492 and/or XXX493) through your director's department.
- Select the second reader in collaboration with your thesis director.
- Write your prospectus, have it reviewed and signed by your director and second reader.
- Submit your prospectus to the Barrett Advising office by the appropriate deadline.
- Meet regularly with your thesis director and second reader on the progress of your thesis/creative project.
- Schedule your thesis defense.
- Complete and file (if appropriate) the thesis reimbursement application.
- Finalize your manuscript with the guidance of your committee, and prepare for your defense.
- Plan to give your committee members a hard copy of your manuscript at least two weeks prior to the defense.
- Present at your oral defense and have your Signature page correctly formatted and signed by your committee.
- Submit your final unbound manuscript to the Barrett Advising office with correctly formatted Signature page containing original signatures (not photocopied) of all committee members, as well as an electronic copy of your thesis. See Final Copy Submission/Formatting section for campus specific emails.
- Confirm that your thesis/creative project director submitted a grade for the completed project and changed the Z grade if one was submitted in a prior semester (for 492).
- Remember to submit the Barrett Graduation form online through MyASU during your final semester. This form is used to RSVP for Barrett Convocation and to declare your intent to complete all Barrett graduation requirements.