Human Systems Engineering

Faculty Honors Advisor

Scotty Craig
Office: 150g SANCA
Phone: 480-727-1006
Email: scotty.craig@asu.edu

Human Systems Engineering, BS

Advising Center
Sutton Hall, Suite 301
480-727-1874

Barrett Honors Advisor for Poly Majors
brady.hamilton@asu.edu

Honors Enrichment Contract Info:

The deadline to submit a contract for the Fall 2018 semester is 9/30/18 and for Spring of 2019 is 1/21/2019

Final day to complete an Honors Enrichment Contract project is the last day of classes for the semester.

Fall 2017 Defense and corresponding deadlines:

Prospectus due: 2/16/8
Defense Form: 10/12/18
Defense completed :10/26/18
Signed title page, final unbound copy due – 11/16/18

Spring 2018 Defense and corresponding deadlines:

Prospectus due: 9/14/18
Defense Form: 3/08/19
Defense completed : 4/06/19
Signed title page, final unbound copy due – 4/19/19

http://barrettpoly.asu.edu

The Ira A. Fulton Schools of Engineering

and Barrett, the Honors College work together to provide their student's academic advising, research and internship opportunities, scholarship information and access to distinguished lectures and other special events.

By taking Human Systems Engineering courses under an honors designation, honors students work on special projects that provide them an expanded understanding of the course subject matter. Often, these courses have a lower student-to-faculty ratio, allowing the students to work on exciting research with faculty members. Students also work directly with Faculty on research project that directly apply knowledge and skills from coursework. Such experiences distinguish honors students from other students and help them gain entrance to graduate programs or garner sought-after jobs. Honors students receive special invitations to various events, including meeting industry, faculty, and staff. They can also gain funding for research or travel to conferences.

Example Offerings for Honors Enrichment Contracts

HSE 101: Introduction to Human Systems Engineering

HSE 223: Applied Biology of Human Behavior

HSE 225: Human Systems Integration

HSE 290: Experimental Methods for Human Systems Research

HSE 324: Applied Cognitive Science

HSE 325: Human-Computer Interaction

HSE 390: Qualitative Research Methods

Or

Any other 300/400 level HSE course taught by a member of the Human Systems Engineering Faculty

Example Honor Theses

Thesis Title	Faculty Mentor
The Colored Computer: Effects of Color on Implicit Biases	Russell Branaghan
The Development and Validation of LGBT Bias Content for Use in an Online Training Program	Scotty Craig
Effects of Varying Levels of Writing Errors on Reader Perceptions of the Author	Rod Roscoe
The Effect of Texting Using a Head-Mounted Display on Reaction Time and Lane Deviations	Robert Gray
The Relationship between Disabilities, the Workplace, and Coping Mechanisms	Rod Roscoe

Human Systems Engineering Faculty and Thesis Options

Students looking for faculty members to supervise their honors thesis can review the following list. Students may work with others, as well, and this list is intended as a starting point only.

Faculty members who encourage Honors work in the area of Human Systems Engineering include:

Vaughn Becker, Santa Catalina 150F, (480) 727-1151, vaughn.becker@asu.edu
Dr. Becker currently is developing a psychophysics of social perception, as well as methods to identify biases in such perception. This could facilitate selecting the right individuals for jobs in which unbiased accuracy and rapid decision-making is essential, for example, in military security or air traffic control. He also is interested in general assessments of cognitive functioning under conditions of high stress and/or fundamental motivations. He has an abiding interest in evolutionary psychology, and a background in social psychology, which has sensitized him to both ultimate and proximate sources of bias, e.g. stereotyping, self-presentation, and attribution errors. Dr. Becker's newest interest is in developing agent based models and dynamical simulations of complex social systems.


Russ Branaghan, Santa Catalina 150J, (480) 727-1390, russ.branaghan@asu.edu
Dr. Branaghan studies cognitive and social human factors in health care, product development, web, and aviation. He is particularly interested in methods for organizing information to make products more useful, usable and desirable. Recent projects have included usability testing, observational research, design and redesign projects for in-car navigation and information systems, information systems for police cars, and methods for redesigning tasks in hospitals to reduce human error and improve patient safety.

Nancy Cooke, Santa Catalina 150B; ISTB3 167, (480) 727-2418, ncooke@asu.edu
Dr. Cooke studies individual and team cognition and its application to the development of cognitive and knowledge engineering methodologies, sensor operator threat detection, homeland security systems, remotely-operated vehicles, healthcare systems, and emergency response systems. In particular, Dr. Cooke specializes in the development, application, and evaluation of methodologies to elicit and assess individual and team cognition. Based on her empirical work in her team testbeds over the last two decades, Dr. Cooke has proposed a theory of Interactive Team Cognition which is published in the journal, *Cognitive Science*.
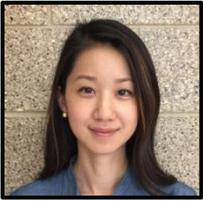
Erin Chiou, Santa Catalina 150H, (480) 727-1589, erin.chiou@asu.edu
Dr. Chiou conducts research in human-automation interaction, specifically how people cooperate and coordinate with increasingly autonomous machines. Her work focuses on building resilient systems for increased productivity, quality, and safety. Current projects include investigating advanced automation in healthcare, such as consumer health technologies and adaptive coaching assistants or medical robotics, in laboratory and field settings.

Scotty Craig, Santa Catalina 150G, (480) 727-1006, scotty.craig@asu.edu
Dr. Craig has conducted projects in such areas as emotion and learning, discourse processing, multimedia learning, vicarious learning environments, and intelligent tutoring systems (ITS) in both laboratory and applied classroom settings. His lab, the Cognitive-Based Applied Learning Technology (CoBALT) Lab (www.cobaltlab.org), seeks to provide cutting edge research at the intersection of human cognition, technology, and the learning sciences which can provide solutions to real world problems within education and training. Current projects include virtual humans for learning and training, music on the web, effectiveness of electronic textbooks for learning, and applications of ITS to training within virtual worlds, classrooms, and after-school settings. Dr. Craig is also the Co-Director of the ADL partnership lab at ASU (adl.asu.edu). This lab's primary focus is on exploratory learning environments which are more task than content oriented in which detailed profiles of the learner can be developed to help personalize the learning experience.

Robert Gray Santa Catalina 150C, robgray@asu.edu
Dr. Gray conducts research on the dynamics of perception, cognition, and action in skilled performance. This work addresses issues of human factors, motion perception, driving, tactile interfaces, sports, and aviation. Dr. Gray's research seeks to advance perception-action theory while directly relating to applied problems. He contributes substantial expertise with simulations, including driving and baseball simulators.

Robert Gutzwiller, Santa Catalina 150E, (480) 727-3716, robert.gutzwiller@asu.edu
Dr. Gutzwiller studies the critical role of the human in complex systems. His work directing the Applied Attention Research (AAR) lab scientifically applies cognitive engineering to healthcare, cyberspace, transportation, and defense. His recent research focuses on studying and engineering attention (How do humans select what task to do when they are multitasking and overwhelmed, and can models predict this behavior?), human-automation interaction (How do humans learn to interact with complex systems, particularly those which use automation, artificial intelligence and machine learning?), and defensive cyberspace operations (How does a cyber analyst protecting networks develop awareness? Could properties of attention be used against would-be attackers to make defenses more robust?).

Rod Roscoe, Santa Catalina 150D, (480) 727-2760, rod.roscoe@asu.edu
Dr. Roscoe examines and explores methods for supporting self-regulated and self-directed learning in authentic settings. Learners, when carefully instructed and scaffolded, can create deep learning experiences for themselves and each other. Similarly, adaptive educational technologies can be designed or deployed in ways that augment learning and afford new ways to learn. Dr. Roscoe's research also targets areas with real-world impact, such as writing proficiency, sustainability, health and wellness, and informed consumer behavior. Ultimately, his research group seeks to empower learners of all ages with productive strategies, technologies, and opportunities that can be sustained over a lifetime of education.

Guidelines for honors theses in the Human Systems Engineering B.S program*

*The following provides general guidelines. Degree Specific information is provided on the next page. Please check with the Barrett Honors College guidelines for updated information:

- ☐ Make sure you meet with your Barrett Advisor, 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) (HSE/HON 492 and/or HSE/HON 493) 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.
- ☐ Designate a third reader with help from your director and notify the Barrett Advising office by submitting your Thesis Defense Form.
- ☐ 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 all 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.

Guidelines for honors theses in the Human Systems Engineering B.S program

All Barrett requirements apply to honors thesis in Human Systems Engineering B.S. program. However, additional program specific requirements are provided below.

1. Prerequisites to the thesis process
   - Completed HSE 230, HSE 290, and HSE 390 with at least a grade of B
   - Completed a minimum of six (6) credit hours of upper division HSE content courses (more is recommended) with at least a grade of B
   - Completed some empirical research experience (beyond a HSE 290-type research experience). Research in HSE 290 or projects embedded in other HSE course work **do not** satisfy this requirement. Examples completion possibilities include taking HSE 484, HSE 499 (as Research with an HSE Faculty member), a faculty certified volunteer experience, a paid undergraduate research position, or internship.
2. Recommendations
   - HSE 430 is highly recommended.
   - It is strongly recommended that students find a potential thesis advisor at least three semesters before graduation.
3. The thesis committee can consist of 2-3 members.
   - The thesis chair MUST BE a regular ASU faculty member affiliated with the Human Systems Engineering Program.
   - The second committee member may be faculty or non-faculty depending on the decision of the chair and the area honors advisor (Undergraduate Director)
   - A third member is NOT required. However, because of the interdisciplinary nature of projects in the Human Systems Engineering area, it is encouraged that a third member of the committee be selected from outside the primary faculty. This member may be faculty or non-faculty and selected based on their relevant expertise.
4. Prior to enrolling in the HSE(HON) 492/HSE (HON) 493 sequence, all students must complete a Thesis/Creative Project information session. Students may complete this requirement by completing one of the following:
   - HON 498 "Thesis Prep Course", a one credit course offered on the downtown campus.
   - One of the Thesis Workshop Sessions periodically offered by Barrett.
   - The online workshop offered through Barrett via ASU Blackboard.
5. HSE(HON) 492 AND HSE(HON) 493 must be taken with your thesis advisor.

INFORMATION ABOUT THESIS/CREATIVE PROJECT (INCLUDES INFORMATION ABOUT THESIS PREP WORKSHOPS AND CLASSES):
http://barretthonors.asu.edu/academics/thesis-and-creative-project/

Useful links
INFORMATION ON HONORS ENRICHMENT CONTRACT:
http://barretthonors.asu.edu/academics/honorscoursesandcontracts/honorsenrichmentcontracts/

INFORMATION ABOUT BARRETT INTERNSHIP OPPORTUNITIES:
http://barretthonors.asu.edu/academics/internships