Honors Opportunities
Polytechnic Campus

College of Integrative Sciences and Arts

The Science and Mathematics Faculty 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 [ABS/BIO/CHM/MAT/PHY] 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. 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 held in other cities.

Offerings for Honors Enrichment Contracts

ABS 130 Intro to Environmental Science
ABS 207 Applied Plant Taxonomy
ABS 270 Sustainable Biological Systems
ABS 271 Veterinary Medicine Today
ABS 274 Intro to Wildlife Management
ABS 302 Ethical and Policy Issues in Biology
ABS 311 Molecular and Cellular Biology
ABS 312 Structure and Function
ABS 314 Applied Plant Physiology
ABS 318 Unseen Life on Earth
ABS 350 Applied Statistics
ABS 355 Vertebrate Adaptations
ABS 362 Plant Propagation
ABS 370 Ecology
ABS 372 Captive Animal Behavior Management
ABS 376 Wildlife Ecology
ABS 377 International Wildlife Conservation
ABS 378 Animal Nutrition
ABS 380 Wildlife and Restoration Plants
ABS 394 Various topics including Small Animal Veterinary Topics, Human Rights and Environmental Management, Medicine and Culture, Future of Agriculture-Vertical Farming, and Food and Human Health
ABS 417 Comparative Immunology
ABS 440 Ecological Restoration Techniques
ABS 470 Life History of Mammals
ABS 452 Commercial Applications of Fermentation
ABS 464 Desert Horticulture
ABS 472 Applied Herpetology
ABS 476 Big Game Habitat Management
ABS 479 Ecosystem Management and Planning
ABS 494 Various topics including Laser Optics, Emerging Infections & Epidemics, Applied Populations and Habitat Ecology and Rangeland Ecosystem Management
ABS 560 Ecological Modeling
BCH 361 Biochemistry
BIO 100 The Living World
BIO 181-182 Introductory Biology
BIO 340 General Genetics
BIO 360 Animal Physiology
CHM 113 General Chemistry I
CHM 116 General Chemistry II
CHM 231 Elementary Organic Chemistry
CHM 233/234 General Organic Chemistry I and II
CHM 237 General Organic Chemistry Lab
CHM 325 Analytical Chemistry
CHM 435 Medicinal Chemistry

MAT 170 Precalculus
MAT 210 Brief Calculus
MAT 211 Mathematics for Business Analysis
MAT 243 Discrete Math Structures
MAT 251 Calculus for Life Sciences
MAT 265 Calculus for Engineers I
MAT 266 Calculus for Engineers II
MAT 267 Calculus for Engineers III
MAT 275 Modern Differential Equations
MAT 343 Applied Linear Algebra
STP 420 Introductory Applied Statistics

PHY 111-112 General Physics
PHY 121 University Physics I: Mechanics
PHY 131 University Physics II: Electricity and Magnetism
PHY 252 Physics III
PHY 314/315 Quantum Physics I and II
PHY 321 Vector Mechanics and Vibration
PHY 331 Principles of Modern Electromagnetism
PHY 361 Introductory Modern Physics
PHY 444 Fundamentals of Nanoscience
PHY 456 Laser Optics
PHY 460 Numerical Methods in Modern Physics
Guidelines/Checklist for honors theses in the [College/Major]*

*The following provides general guidelines. 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) (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.
Students looking for faculty members to supervise their honors theses can review the following list. Students may work with other faculty as well. This list is intended as a starting point only. Faculty members who encourage Honors work in the areas of Biology, Chemistry, Mathematics and Physics include the following:

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Research</th>
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<tbody>
<tr>
<td>Heather Bateman</td>
<td><a href="mailto:Heather.L.Bateman@asu.edu">Heather.L.Bateman@asu.edu</a></td>
<td>Wildlife biology and ecology. I am a field biologist interested in how land management and urbanization affects birds and reptiles. <a href="http://hbateman.faculty.asu.edu/">http://hbateman.faculty.asu.edu/</a></td>
</tr>
<tr>
<td>Michael Dugger</td>
<td><a href="mailto:michael.dugger@asu.edu">michael.dugger@asu.edu</a></td>
<td>Dr. Dugger’s research interests are in determining the resonance structure of baryons and in finding exotic QCD objects to help us better understand strongly interacting systems. To this end, Michael is a member of two large collaboration of physicists: the CEBAF (Continuous Electron Beam Accelerator Facility) Large Acceptance Spectrometer Collaboration (CLAS), and the GlueX collaboration.</td>
</tr>
<tr>
<td>Doug Green</td>
<td><a href="mailto:DM.Green@asu.edu">DM.Green@asu.edu</a></td>
<td>Riparian ecology; distribution of soils and effect on vegetation</td>
</tr>
<tr>
<td>Holly Huffman</td>
<td><a href="mailto:Holly.Huffman@asu.edu">Holly.Huffman@asu.edu</a></td>
<td>My research is literature based (non-laboratory based) and broadly encompasses many aspects of biochemistry and cell biology including, but not limited to; enzyme function, biochemical basis of diseases and their remedies, nutritional aspects of foods in vertical horticulture, and applications of fermentation</td>
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<tr>
<td>Yun Kang</td>
<td><a href="mailto:Yun.Kang@asu.edu">Yun.Kang@asu.edu</a></td>
<td>My research is integrated with biological experiments and mathematical models. Topics of an Honor thesis can range from how disease spreads, how social animal interact with each other, how cooperation in social insects work, etc. The focus of the thesis can be either experiments or theoretical analysis.</td>
</tr>
<tr>
<td>Jesse Lewis</td>
<td><a href="mailto:jesse.s.lewis@asu.edu">jesse.s.lewis@asu.edu</a></td>
<td>Applied wildlife ecology and conservation. My research focuses on space use, habitat selection, and interactions within and among wildlife populations, particularly in relation to human influences. I often work with medium and large sized carnivores and ungulates, but am open to working with a variety of species.</td>
</tr>
<tr>
<td>Xianping Li</td>
<td><a href="mailto:Xianping@asu.edu">Xianping@asu.edu</a></td>
<td>Dr. Li’s research interests include numerical analysis, scientific computing, numerical solutions of partial differential equations, mesh adaptation, anisotropic diffusion problems, image processing, parallel computing, mathematical modeling and simulation, and computations in biology, science and engineering</td>
</tr>
<tr>
<td>Julie Murphee</td>
<td><a href="mailto:Julie.Murphree@asu.edu">Julie.Murphree@asu.edu</a></td>
<td>Animal Science, Bioethics, conservation, environmental ethics, environmental history, and wildlife nutrition</td>
</tr>
<tr>
<td>David Oakes</td>
<td><a href="mailto:David.Oakes@asu.edu">David.Oakes@asu.edu</a></td>
<td>Biological modeling, evolution, and functions of real variables</td>
</tr>
<tr>
<td>Yujin Park</td>
<td><a href="mailto:yujin.park.2@asu.edu">yujin.park.2@asu.edu</a></td>
<td>My research focuses on horticultural crop physiology and controlled environment agriculture, including indoor vertical farming and greenhouse production with the goal of better understanding how environmental controls, including light, temperature, and nutrients, regulate plant growth and development of floriculture and vegetable crops and improve crop production efficiency.</td>
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Xihong Peng  Xihong.Peng@asu.edu  First-principles electronic structure calculations to study properties of materials in multi-disciplinary fields such as Physics, Chemistry, Material Science and Engineering

Ryan Penton  crpenton@asu.edu  Environmental microbiology/microbial ecology; microbial diversity and bioinformatics

Pavan Pillalamarri  pavan.pillalamarri@asu.edu  Applied Physics and Engineering: My research focuses on Computational modeling and applications to various fields of science and engineering. My interests involve Biological growth processes (e.g. tumor modeling), Diffusion models, Image/Signal processing, Chaos theory, Statistical mechanics and Condensed matter physics.

Steve Saul  Seven.Saul@asu.edu  Coupled human-natural ecological system dynamics; population dynamics of marine fish; quantitative approaches to inform fisheries management; agent-based modeling; statistical population models; GIS, mapping, and remote sensing; spatial statistics; coral reef ecology and geomorphology.

Igor Shovkovy  Igor.Shovkovy@asu.edu  Theoretical physics with applications in many sub-fields of physics, e.g., condensed matter, nuclear, particle physics and astrophysics

Kelly Steele  kelly.steele@asu.edu  Chromosome, genome, and molecular evolution of the flowering plant genus Medicago which includes important legume forage crops such as alfalfa

Adam Stein  Adam.C.Stein@asu.edu  Natural resource conservation

Maxim Sukharev  maxim.sukharev@asu.edu  Computational (involving parallel supercomputers) and experimental investigations (utilizing hands-on laser laboratory) of optical properties of various nanomaterials

Fabio Suzart de Albuquerque  Fabio.Albuquerque@asu.edu  Macroecological issues including effect of fragmentation and habitat loss on biodiversity and conservation biogeography over broad scales

Michelle Zandieh  zandieh@asu.edu  Research in undergraduate mathematics education with a focus on teaching and learning of topics in calculus and linear algebra. Qualitative research methods to analyze data from written surveys, interviews with students or in class videos of small group or whole class discussion.

Wenwei Zheng  wzheng38@asu.edu  My research is concerned with the function and malfunction (disease) of large biomolecules. Novel computational chemistry methods are developed, with emphasis on their connection to the experiment.