

Opportunities and Expectations for Honors Students in the School of Mathematical & Natural Sciences (MNS)



MNS is an exceptionally student-centered school. We pride ourselves on our focus on the successful development of our undergraduate majors. Our educational goals in MNS are to catalyze the development of knowledge, technical and critical thinking skills in our students to help our undergraduates function as effective citizens, scientists, and scholars in the 21st century. Faculty and students in MNS are engaged in cutting-edge research across a broad range of disciplines (see Faculty research summary below). Our disciplinary strengths are reflected in our undergraduate research opportunities. Faculty research in MNS includes applied computing, biostatistics, physics, chemistry, cellular/molecular biology, genetics, ecology, organismal biology and environmental science. Notably, undergraduates in general, and Barrett students specifically, will find that MNS faculty are eager to challenge student collaborators to develop their own ideas and projects. Recent Barrett, Honors thesis projects have included work on the behavior of black widow spiders in urban infestations, the development and implementation of a mobile app to identify instances of cyberbullying in Facebook and report this information to the victim's parents, and the discovery of a genetic "fingerprint" responsible for irritable bowel syndrome, a disease that currently lacks a diagnostic test.

MNS students can currently specialize in a number of majors and concentrations including:

- [Applied Computing](#)
- [Applied Mathematics](#)
- [Forensics](#)
- [Natural Sciences](#)
 - [Life Sciences](#)
 - [Environmental Science](#)
 - [Chemistry Minor](#)
 - [Cell and Molecular Biology](#)
 - [Pre-Medical](#)
- [Statistics](#)

Milestones

We strongly recommend that you make an appointment to see your faculty honors advisor (Chad Johnson, jchadwick@asu.edu, 602-543-6524) early (late Freshman year or early Sophomore year) to orient you towards possible faculty mentors and to become familiar with research opportunities in MNS for your **honors thesis project (more about the honors thesis below)**.

Note, see your assigned **Academic Advisor** as soon as possible after your arrival at ASU to make sure you are satisfying **course requirements** for each of the majors/concentrations.

Courses

The goal of the Barrett Honors College's curriculum is to develop habits of mind that enable persons to be lifelong learners, creative problem solvers, and participatory citizens in a democratic society.

Most of our undergraduate courses can be taken for Honors Enrichment Contract; please contact the instructor at the beginning of the semester to discuss the requirements. Activities for your Honors contract might include attending discussion groups, developing lab exercises, writing papers, preparing class material or giving presentations. **We strongly recommend** that your selections are realistic as it speaks of poor time management to sign up for an Honors Enrichment Contract and then not to carry it through. The following is a link to Barrett information about Honors Enrichment Contracts: <http://barretthonors.asu.edu/academics/honors-courses-and-contracts/honors-enrichment-contracts/>

Special Barrett honors seminars are offered each year in which MNS faculty guide students through special topics.

Honors thesis project

Honors students are required to complete an honors thesis/creative project. Typically, honors students enroll in 3 credits of BIO/HPS/MIC/MBB 492 (Honors Thesis Research) and in 3 credits of BIO/HPS/MIC/MBB 493 (Honors Thesis) in their junior or senior year. BIO/HPS/MIC/MBB 493 is not repeatable for credit and can be taken for a maximum of 6 credits. Honors students can choose other areas of interest and are not required to complete the thesis project with faculty members in their major. Below are tips for students interested in completing the honors thesis project within MNS.

Steps to prepare for honors thesis research and suggested deadlines:

Year 1:

- Meet with your honors faculty advisor. Start talking about the kinds of research experience that might interest you.
- Think about applying to the NCUIRE program.

Year 2:

- Start thinking seriously about what type of research you would like to do **by the end of your sophomore year**, at the latest.
- Determine what area of research might be most compatible with your future goals (grad school, med school, etc.).
- Look on the MNS website to find out who does related research compatible with your interests. **For links to research opportunities, see the flyer at the end of this page.**
- Try to come up with a list of at least half a dozen faculty members (the more the better; not everyone will be able to accommodate you). **Make an appointment with your Faculty Advisor** to discuss who may be the best fit for you.
- Remember, your faculty research mentor will be able to write a detailed letter of reference for you. It is also possible that, if the results of your thesis are publishable, you will be author or co-author of a conference presentation or research paper.**

End of Year 2:

- At least 3-4 months before you want to start your research, email the potential faculty mentors (or off-campus mentors) you've selected with a detailed introduction of yourself, your professional interests, relevant courses you have taken, and a detailed reasoning of why you would like to work in his or her group. Make sure you make it clear in your message that you have looked into their research field, read some of their papers, etc. Remember that faculty members receive many inquiries from students who would like to work with them. You will need to make sure that your inquiry stands out. Displaying genuine interest in, and knowledge of the research area makes you a more attractive candidate. Ask the faculty member whether (s)he has space for a motivated undergrad next semester, and whether you can come by and discuss potential research topics.

Year 3:

- When you have found a place to do your research, discuss your project with your faculty mentor. Make sure you have a clear understanding of how the research will be performed. Don't be shy. Make sure you have a clear

understanding of the expectations for progress, product, working hours, and timeline.

Expect to do the bulk of your thesis research during this year and the first semester of your senior year. Research always takes longer than you anticipate. **It is unrealistic to think that you can find a faculty mentor, start research and complete a quality project during your senior year.**

Year 4:

Expect to start writing the honors thesis based on your research during the fall semester of your final year. You need to allow sufficient time for writing. The amount of time you need for writing will vary depending upon research project, but it will take months, not days.

Honors students must enroll in BIO/HPS/MIC/MBB 493 the semester that they defend their thesis. Steps for enrolling in BIO/HPS/MIC/MBB 493 are the same as enrolling in BIO/HPS/MIC/MBB 492.

Select the rest of your thesis committee. In MNS, an honors thesis committee is composed of three (3) members. Typically, the mentor and the second reader are faculty members. If the research mentor is off-campus, then the mentor will be a co-director with a regular ASU faculty member. The third member of the committee does not need to be a faculty member.

For more detailed information about the Honors Thesis Project, please refer to your honors advisor and the Thesis/Creative Guidelines found at:

<http://barretthonors.asu.edu/academics/thesis-and-creative-project/>

New Thesis Preparation Requirement, Fall 2013

New requirement of ALL BARRETT students: prior to enrolling in thesis credit (BIO/HPS/MIC/MBB 492 or 493), all students must complete a thesis information session. The session is designed to make certain each student has been informed about the process, expectations, and deadlines. Students may complete this requirement in one of three ways:

1. Through a workshop or course offered in an academic unit and approved by Barrett. These are available in Biology and Society (BIO 314) and Philosophy (workshop) only.
2. Through a workshop/session (several every semester) or a course (one each semester at PHX Downtown campus) offered by Barrett
3. Through an online workshop offered through Barrett via ASU Blackboard.

For more information about the Thesis Preparation Requirement (including how to enroll in the online workshop, see:

<http://barretthonors.asu.edu/wp-content/uploads/2010/12/New-Thesis-Prep-Req-2013-110613.pdf>