

Honors Opportunities in the College of Health Solutions

The College of Health Solutions (CHS) aims to prepare the next generation of health professionals through a broad set of health degree programs. We have recently introduced degree programs that will prepare professionals for continued graduate education and health leadership positions. We are thrilled to offer challenging and rewarding experiences to Barrett students across ASU. Welcome!

Honors Opportunities in Biomedical Informatics

The Bachelor of Science in Biomedical Informatics (BMI) program is one of a kind. BMI includes the application and theory of computer science, information technology, probabilistic reasoning, and other sciences to biomedicine and health care delivery.. Our faculty have expertise in sub-disciplines including clinical informatics, bioinformatics, public health informatics, imaging informatics, and cross-cutting areas such as natural language processing (NLP) and cognitive science. Honors students can choose to work on a research project with faculty into one of these disciplines.

Honors Classes & Honors Enrichment Contracts

Although there are currently few HON courses offered in CHS, there are several other options for CHS students to receive honors course credit. Most courses in CHS programs 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 to develop a mutually acceptable plan for the honors contract activity. Most contracts involve either a project that extends the ideas and techniques covered in the course or outside research on relevant topics. Students have the responsibility to apply for the honors contract through the Barrett Honors College via the student's MyASU page. The Honors College contacts the instructor to approve the contract only after the student has initiated the process. The following link provides more information and deadlines: [Honors Enrichment Contracts](#)

Non-CHS Honors Section Courses

These courses are designated by the department offering a specific course. The following courses are closely related to the CHS curriculum and offer Honors Sections: BIO 181, ENG 102, ENG 105, MAT 265 and other courses. To receive honors credit, students must enroll in that designated section, with the exception of ENG 105, which can be any in-person class.

Honors students in Biomedical Informatics

BMI Honors students may use 492 Honors Research/493 Honors Thesis as upper division electives with credit towards the BMI degree, if approved. Courses closely related to the CHS curriculum offer Honors Sections: BIO 181, ENG 102, ENG 105, MAT 265 and some PHY and other courses. To receive honors credit, students must enroll in that designated section. ENG 105 can be any in-person class.

Honors Internship Opportunities

Information about Honors internship opportunities available through Barrett can be found here: <http://barretthonors.asu.edu/academics/internships/>. The MED 484 internship is also a viable option for BMI students, and is available for honors credit via Honors Enrichment Contract.

Research & Thesis Opportunities

BMI faculty advise students in academic research on a wide array of topics relevant to personal interests and professional goals. Positions may entail volunteer work, clinical or research experiences, potential Honors thesis or creative projects, and broader learning experiences. Course credit for independent research is also available (BMI 499).

Honors Thesis in Biomedical Informatics

The thesis may be completed one of two ways within BMI: as a supplement to the BMI capstone courses or as an independent study under the advisement of an BMI faculty member (Thesis Director).

1. *Capstone*: Upon approval, the thesis may be completed as part of the student's BMI capstone project. This would be conducted as part of the standard capstone experience. In most cases, the Thesis Director will be the advisor for the Capstone Project. Students must do something extra for their project, such as more extensive literature review, additional experiments, additional analysis, or a discussion of the social/economic/environmental impact of their project.
2. *Independent Study*: the thesis is an independent project performed under the mentorship of BMI faculty.

In both cases, the student should enroll for the appropriate credit hours (see below).

Committee Structure: the minimum number of committee members is two, one of which must be the Thesis Director, who must be an ASU faculty member (i.e. tenure-line faculty, research faculty, lecturer, professor of practice). The second committee member may be faculty or non-faculty, depending on the decision of the Thesis Director or the academic unit of the director. A third committee member is not needed unless specified by the director or the academic unit of the director OR unless an external examiner is added (who will be a third committee member).

Enrolling for Honors Thesis in BMI

It is highly recommended the student identify a Thesis Director and meet to discuss the proposed thesis a semester before they intend to start.

For both the Capstone and Independent Study options, thesis work spans 2 semesters, 6 credits:

- Semester I – BMI 492 Honors Directed Study (3 credits)
- Semester II – BMI 493 Honors Thesis (3 credits)

BMI thesis credits are taken with approval from a sponsoring BMI faculty member. If your thesis director is from outside BMI you will work with the advising office of that unit and enroll in department specific credit (ex. Biology faculty for director = BIO 492/493). Thesis credits must be *taken in sequence and cannot be taken together in a single semester*, though an intervening semester may be allowed.

Prior to enrolling in BMI 492 or 493, students must complete a thesis/creative project information session by completing any 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 on-line workshop offered through Barrett via ASU Blackboard.

After completing the information session, BMI students can enroll for Honors Thesis credits by completing the appropriate form and submitting it to their BMI advisor by the drop/add deadline.

Tips

- *Explore Barrett Resources:* Barrett has excellent online resources outlining the Honors Thesis projects. A guidebook can be found at: <http://barretthonors.asu.edu/academics/thesis-and-creative-project/>
- *Attend a Thesis Workshop:* Barrett also arranges several workshops throughout the semester to help you get started with your thesis and to de-mystify the thesis process.
- *Talk to BMI Faculty:* faculty have experience mentoring students on the Honors Thesis and can guide you through the process and advise you what they might expect
- *Review past thesis documents:* Barrett Honors College has a library of documents previously prepared by Honors students. These are an excellent resource to help plan the structure of your document. You can schedule an appointment to view past projects in the Barrett Thesis Library by contacting the Barrett Advising Office at barrettadvising@asu.edu or 480-965-9155.
- *Attend thesis defenses:* Every student publicly presents thesis outcomes as part of a defense. Attending a defense before you do your own will help you prepare and give you a sense of how to present your outcomes as well as the kinds of questions you might expect. A schedule of upcoming defenses can be found at: <http://barretthonors.asu.edu/academics/thesis-and-creativeproject/defense-calendar/>
- *Talk to other BMI and CHS Honors students:* If they are currently going through the thesis process, or preparing for it, talking to other students can help plan for your thesis.
- *Talk to the BMI or CHS Faculty Honors Advisors or Advising Staff.*

Financial Support for the Honors Thesis in BMI

Barrett has support and funding for Honors Thesis work:

- *Thesis Funding* – Students may apply to receive up to \$500 to complete their thesis to cover materials and supplies needed to complete the project.
- *Honors Project Fund* – Typically used for non-thesis related expenses such as presenting a paper at a conference or attending an annual meeting related to your major to cover such costs as travel, hotel, conference registration and supplies.
- *External Examiners Program* – As part of the thesis defense, students can apply to bring in an outside examiner or expert from another institution to serve as a thesis committee member. Students may receive up to \$1500 toward associated expenses, such as airfare and hotel.

Example Honors Thesis schedule

Junior Year

End of Spring Semester

- Find a faculty member to advise you on your Honors Thesis (the Thesis Director); begin discussing possible projects
- Enroll in BMI 492 for 3 credits

Senior Year

Start of Fall Semester

- Work with your Thesis Director to define your project and formulate an action plan for the project (the Prospectus).
- Prepare your Prospectus and submit to Barrett. See: <http://barretthonors.asu.edu/2011/02/prospectus/>

Fall Semester

Complete background review for project

End of Fall Semester

- Enroll in BMI 493 for 3 credits

Beginning of Spring Semester

- Continue working on project and begin preparing thesis document

Before Spring Break

- Complete first draft of the thesis document and submit to Thesis Director for initial review
- Schedule your thesis defense - remember this is your responsibility – by completing the Thesis/Creative Project Defense Reporting Form
- Note that a draft of the thesis should be sent to the entire committee for review at least two weeks before your defense

After Spring Break

- Prepare for your defense
- Hold defense; following a successful outcome, have Signature Title Page signed by all committee members
- Make any necessary changes to the thesis document based on feedback from committee

Early April

- Submit final thesis document to Barrett!

Faculty Honors Advisor, Biomedical Informatics

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Dr. Matthew Scotch is an Assistant Professor in the [Department of Biomedical Informatics](#) and the [Center for Environmental Security](#) at Arizona State University. His research interest is in the intersection of public health informatics and bioinformatics, specifically linking health data on animals and humans to support surveillance of zoonotic diseases (diseases transmittable between animals and humans). He is also working on developing an informatics system to support phylogeography of zoonotic RNA viruses.

In 2008, Dr. Scotch was the recipient of the NIH's Pathway to Independence grant, a five-year career development award funded through the National Library of Medicine (NLM). He received a Masters in Biomedical Informatics from Columbia University, a PhD in Biomedical Informatics from the University of Pittsburgh and a Masters of Public Health (MPH) from Yale University.
Research interest:

- Bioinformatics for Public Health (systems that leverage molecular sequence data to support decision-making at health agencies)
- Zoonotic disease surveillance (linking health data on animal and humans)
- Phylogeography of zoonotic RNA viruses
- Molecular epidemiology of zoonotic RNA viruses using sequences
- Sequencing and analysis of the Influenza A genome
- Geographical Information Systems (GIS)
- Natural Language Processing (NLP)