

# STH-Science and Tech Honors Courses

---

## Courses

### STH 151. Leadership Project Planning. 1 Hour.

Students will apply leadership and teamwork skills to analyze a problem or need and develop a plan to address the need. Skills such as developing measurable outcomes and communicating with stakeholders are emphasized.

### STH 199. Introduction to the Scientific Process. 3 Hours.

Fall semester of freshman year. First-year Honors Seminar for students accepted in the Science and Technology Honors Program. Discussion of basic concepts of scientific methodology will be integrated with analysis of scientific journal articles and use of visual representations to communicate ideas. Students learn about research ongoing at UAB through working with a small team to analyze a scientific publication. The course will culminate in presentation of a poster representing their analysis of the article.

### STH 201. Research Approaches. 3 Hours.

Spring semester of freshman year. Hands-on experience with research methods. Students participate in a lab experience such as biotechnology, engineering, molecular genetics, or chemical analysis in which they learn state-of-the-art techniques used in research laboratories.

### STH 220. Special Topics in Science and Technology. 1-3 Hour.

Explore topics that span multiple scientific or technical disciplines addressing pertinent theoretical, practical, and ethical issues.

### STH 240. Big Ideas in Science and Innovation. 1-3 Hour.

Seminar that builds on scientific thinking skills developed in previous STH courses. In this course, students will examine science as a way of knowing. We will explore the relationship between scientific research and the public conversation around a topic. Both primary scientific and popular press sources will be considered.

### STH 250. Prime Time Leadership. 1-3 Hour.

Carry through leadership or innovation project. Document outcome of the project, report to stakeholder, and prepare public presentation of project.

**Prerequisites:** STH 151 [Min Grade: C]

### STH 299. Interdisciplinary Seminar. 3 Hours.

Fall (or sometimes Spring) semester of sophomore year. Students will learn and explore how complex problems are addressed by multiple disciplines. This course will illustrate the synergy achieved by interdisciplinary analysis of problems.

### STH 310. Communicating Science. 0-3 Hours.

Students will collaborate with university faculty and staff to produce media products which communicate scientific concepts to the public. Permission of instructor is required.

### STH 320. Advanced Topics in Science and Technology. 1-3 Hour.

Analyze advanced issues that span multiple scientific or technical disciplines addressing pertinent theoretical, practical, and ethical issues.

### STH 340. Current Challenges in Translating Science into Benefit. 1-3 Hour.

Seminar to address current challenges and controversies in science and its translation into application. Students will examine the spectrum from basic science foundations through translational research to applications, for example, in medicine or energy policy. Students hone skills in analyzing original scientific papers and using technical databases. Teams of students will develop a proposal for next steps in a translational challenge.

### STH 350. Next Level Leadership. 1-3 Hour.

Oversight of team organized to sustain leadership or innovation project.

**Prerequisites:** STH 250 [Min Grade: C]

### STH 390. Preparation for STEM Teaching. 0-3 Hours.

Student will assist in course instruction through working with student teams on assigned projects. Student is required to attend scheduled preparatory sessions each week, assist in teaching the assigned course section, help develop student assignments, and assist the course instructor in other capacities as assigned. Students work under the direction of the course instructor. Student must have completed the course in which the student is assisting with a grade of B or higher or have equivalent experience. Permission of the instructor is required. May be repeated for credit up to a maximum of three (3) credit hours.

### STH 394. Clinical Innovation Seminar. 0-3 Hours.

Students will rotate through clinical settings to identify problems in instrumentation or procedure that impede quality or efficiency. Students will analyze these problems and develop proposals for solutions. Prototypes may be produced.

### STH 395. Honors Proposal Preparation. 1-2 Hour.

Seminar for students who are preparing to propose their honors thesis research project and have worked in a lab for a minimum of one semester. Students will present and discuss their research plans and provide input into the proposals of classmates. Honors thesis research proposals will be completed by the end of the semester and defended before a faculty committee. Students must have permission of the program director if they have not completed at least one semester of mentored research prior to taking this course.

### STH 396. Internships/Community Projects/SL. 0-6 Hours.

Experiential learning through individually designed community based or clinically related experiences. Each project will have both experiential and academic components. Permission of program director is required.

### STH 397. Independent Study. 0-6 Hours.

Individually designed academic course of study under the direction of a selected faculty member. Permission of the program director is required.

### STH 398. Honors Research. 0-6 Hours.

Laboratory research under the supervision of a faculty mentor. Permission of program director is required.

### STH 399. Honors Thesis Research. 0-6 Hours.

Undergraduate research for student's honors thesis project under the supervision of a faculty mentor. Students may register for this course after approval of their honors thesis proposal in STH 395.

**Prerequisites:** STH 395 [Min Grade: C]

### STH 400. Honors Thesis Preparation. 1-2 Hour.

Students will prepare their honors thesis in the format of a journal article during this course and present it to their faculty committee for approval.

**Prerequisites:** STH 395 [Min Grade: C]

### STH 401. Honors Capstone. 2 Hours.

Students complete a capstone project and prepare a written paper and oral presentation for approval by their faculty committee.

**STH 410. Innovation Internship. 0-3 Hours.**

The first semester of this internship will be unpaid during which the student commits 12-20 hours/week to work with the company to which they are matched. The student and company representatives will develop an internship agreement which specifies the expectations for time commitment, frequency of review or supervisory meetings, and any other parameters which are felt to be important by the company representatives. A midterm review will be completed by a representative of the company and the student, and an end of term evaluation will be completed jointly by the student and the company supervisor. The internship does not obligate the student to continue to work with the company after the designated internship semester; however, after the initial internship semester, it is possible for the student to continue their work with the company on either a volunteer or a paid basis. Whether students continue to work with the company as volunteers or as paid employees, they may repeat STH 410 and earn additional credit hours toward their STHP designation.

**Prerequisites:** (STH 199 [Min Grade: C] or BY 213 [Min Grade: C]) and (STH 201 [Min Grade: C] or CH 201 [Min Grade: C] or BY 214 [Min Grade: C]) and EH 102 [Min Grade: C]

**STH 490. Practicum in STEM Teaching. 0-3 Hours.**

Student will assist in course instruction through working with student teams on assigned projects and will serve in the "lead assistant" role. Student is required to attend scheduled preparatory sessions each week, assist in teaching the assigned course section, help develop student assignments, and assist the course instructor in other capacities as assigned. Students work under the direction of the course instructor. Student must have completed the course in which the student is assisting with a grade of B or higher or have equivalent experience and have completed at least 1 credit hour of STH 390. Permission of the instructor is required. May be repeated for credit up to a maximum of three (3) credit hours.

**Prerequisites:** STH 390 [Min Grade: P] or STH 390 [Min Grade: B]