

## Biology Departmental Honors Program

**I. Overview:** The Biology Department Honors Program was created to acknowledge and reward students undertaking and completing a more rigorous, research-oriented curriculum while pursuing their Bachelors degree in Biology at the University of Utah.

The centerpiece of the Biology Honors Program is a research project culminating in a scholarly, written thesis. The minimum requirement is three semesters of research totaling 9 credit hours, but students are encouraged to pursue their research in greater depth.

In addition, students in the Biology Department Honors program must successfully complete (with a grade of B or better) a curriculum of designated Biology honors courses at the 2000-4000 level, and Biology Honors electives numbers 5000 or higher. Students must maintain a cumulative GPA of 3.5 in all Biology courses.

The Biology Honors Program is intended to be flexible and to provide maximum access to transfer students and to the approximately 700 Biology majors. This program fulfills the requirements set forth by the University Honors Board.

**II. Requirements and Full Program of Study for a Bachelors Degree in Biology with Departmental Honors:** Upon completing the following courses and requirements, students will receive recognition of Bachelor of Science in Biology with “Departmental Honors” on their diploma upon graduation.

**A. Required courses:** The entire program of study for a Biology Honors degree is listed below (*Biology courses in bold italics are honors courses described in section III below*):

### Required ancillary science courses

MATH 1170 (4)	CHEM 1210 (4)	CHEM 2310 (4)
MATH 1180 (4)	CHEM 1230 (1)	CHEM 2330 (1)
PHYCS 2010, 2110 or 2210 (4)	CHEM 1220 (4)	CHEM 2320 (4)
PHYCS 2020, 2120 or 2220 (4)	CHEM 1240 (1)	CHEM 2340 (1)

(Biology Honors Students will be encouraged to take Math, Physics and Chemistry Honors courses to fulfill these requirements.)

### Required biology courses

- BIOL 2010 (3) - Evolution and Diversity of Life
- ***BIOL 2015 (1) - Evolution and Diversity Lab***
- ***BIOL 2021 (4) - Principles of Cell Science***
- ***BIOL 2025 (1) - Cell Biology Lab***
- BIOL 2030 (3) - Genetics
- ***BIOL 2035 (1) - Genetics Lab***
- ***BIOL 2870 (1) - Faculty Research Seminar***
- BIOL 3410 (3) - Ecology and Evolution

- BIOL 3510 (3) - Biological Chemistry I

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- Complete ONE of the following five organismal form and function courses
    - BIOL 3310 (3) - Comparative Vertebrate Morphology
    - BIOL 3320 (3) - Comparative Physiology
    - BIOL 3330 (3) - Behavioral Neurobiology
    - BIOL 3350 (3) - Plant Physiology
    - BIOL 5365 (4) - Plant Structure and Function
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- ***BIOL 4995 (min 9) - Biology Honors Research***<sup>see note 1</sup>
- ***BIOL 4996 (1) - Biology Honors Seminar and Thesis Preparation***

The Biology courses above constitute 33 of the 36 semester hours required for the Biology major and 18 of the 24 hours of honors courses required by the University Honors Policy Board. The remaining hours must be fulfilled by completing approved Biology/ Biology Honors<sup>notes 2/3/4/5</sup> electives.

*Students in the Biology Department Honors Program are strongly encouraged to take an upper division Honors course outside of their major.*

**Notes:**

<sup>1</sup>Three semester hours of Biology 4999 (Honors research) may be substituted for 3 of the 9 required hours of Biol 4995, allowing students to fulfill both Departmental and University Honors requirements.

<sup>2</sup>Biology Honors electives are 5000 level Biology courses with enrollments of 35 or fewer students.

<sup>3</sup>Students entering the program prior to implementation of Biology Honors courses may fulfill the 24 credit requirement with approved Biology electives or Honors courses offered by other University programs (see also note 4 and section D.)

<sup>4</sup>Courses taken in the University Honors Curriculum may be counted toward the 24 credit requirement.

<sup>5</sup>The Biology Department Honors Coordinator/Committee may waive specific requirements and/or accept substitute courses on a case by case basis. Biology 4995 and 4996 may not be waived. Students must request waivers/substitutions in writing, explaining how the desired substitution meets honors policy requirements, and must submit a letter from their research advisor supporting the substitution.

**B. Grade requirements:** Biology Honors students must maintain a GPA of 3.5 in Biology courses and 3.4 overall, and must receive a minimum grade of B in all Biology Honors courses.

**C. Biology Honors Thesis:** The centerpiece of the Biology Honors Program will be a research project, culminating in a scholarly, written thesis and oral seminar which will be submitted,

presented, and defended to the Biology Department Honors Committee. As per University Honors policy, the thesis and seminar must be completed “*with distinction.*”

**III. Admission:** For admission to the Biology Honors Program, students must arrange a research advisor in the Biology Department. Students must then submit a transcript, a brief written proposal (~5 pages) outlining the research to be conducted, and a letter of support from the research advisor to the Biology Department Honors Committee. For more information, contact the Biology advising office or the Biology Honors Program Coordinator (Dr. David Gard, [gard@biology.utah.edu](mailto:gard@biology.utah.edu)).

**IV. The Biology Honors Coordinator/Committee** will oversee all aspects of the Biology Honors Program. The Coordinator/Committee will (i) approve the research proposal, (ii) monitor the relationship between student and research supervisor, (iii) assess research progress and (iv) approve the final thesis. To maintain high standards, the Coordinator/Committee may request faculty in the specific research discipline to aid in monitoring and evaluating the research experience.

#### **V. A listing of Biology Honors Courses**

**Biology 2015: *Evolution and Diversity Lab*** complements Biology 2010, Evolution and Diversity of Life. Most laboratory sessions will involve observing the organisms discussed in lecture. The course meets twice weekly, three hours each meeting, for 7 weeks. One or more sections will be designated as Honors sections.

**Biology 2021: *Principles of Cell Science.*** In addition to the three hours of lecture, Honors students will meet in a faculty-led discussion section that will explore the experimental evidence underlying our understanding of cell structure and function.

**Biology 2025: *Cell Biology Lab.*** A cell biology lab will be developed in 2002-2003 and will be designed to complement Biology 2020 and 2021, Principles of Cell Biology. Basic principles of cell biology will be introduced through the use of common laboratory techniques, including phase and fluorescence microscopy, polymerase chain reaction, electrophoresis, etc. The course will meet twice weekly (3 hrs/meeting) for seven weeks. One or more sections will be designated as Honors sections.

**Biology 2035: *Genetics Lab*** will complement Biology 2030, Genetics. Experiments demonstrating the basic principles of Genetics will be conducted. The course will meet twice weekly (3 hrs/meeting) for seven weeks (1 credit), and one or more sections will be designated as Honors sections.

**Biology 2870: *Faculty Research Seminar*** familiarizes students with faculty research in all areas of biological science. The course is 1 credit and is organized by Biology faculty.

**Biology 4995: *Biology Honors Research*** is restricted to students working under the direction of faculty affiliated with the Biology Department. A minimum of three semesters of research totaling at least 9 credit hours is required for Departmental Honors in Biology (although College guidelines specify a minimum of 2 semesters (6 hours) of research for Departmental honors, the

highly technical nature of modern biological research necessitates additional time to produce a substantial body of original work).

**Biology 4996: *Biology Honors Seminar*.** Students write a scholarly thesis and present their research findings orally to their the research advisor and the Biology Department Honors Committee. The thesis and oral presentation must be completed “with distinction.” Must be taken in the semester prior to graduation.

**Biology 5XXX, Biology 6XXX, Biology 7XXX:** 5000-level (or higher) Biology courses with enrollments of 35 or fewer students may be take to fulfill Biology Honors electives requirements.