

# HLSC - INTEGRATED LIFE SCIENCES

## HLSC100 Students in the University: Integrated Life Sciences (1 Credit)

In a small classroom setting, Integrated Life Sciences students learn about academic resources on and off campus.

**Restriction:** Must be in the Honors College Integrated Life Sciences program.

**Credit Only Granted for:** EDCP108O, HLSC100, HONR100, or UNIV100H.

## HLSC102 Service-Learning in the Life Sciences (1 Credit)

The Integrated Life Sciences (ILS) Honors Program includes a rigorous academic curriculum, a research requirement, a living-learning component, and a service-learning experience. Service has been a tradition since 2012 and was initiated by our students, who wanted service incorporated as part of the ILS mission and values. Our students have contributed more than 6,000 hours of their time and talent to campus and local organizations, and this experiential learning has provided an opportunity to apply classroom studies to the real world. In general, these service experiences are directly relevant to their future careers as life scientists, because they contribute to improved access for all people to quality health care, to engaging STEM education, and/or to sustainable environments. The service-learning experience is introduced in the fall semester of the first year of ILS in HLSC100, and completed with a 1-credit course in the spring.

**Prerequisite:** HLSC100.

**Restriction:** Must be in the Honors College Integrated Life Sciences program.

## HLSC207 Principles of Biology III Organismal Biology (3 Credits)

The diversity, structure and function of organisms as understood from the perspective of their common physicochemical principles and unique evolutionary histories.

**Prerequisite:** BSCI160, BSCI161, BSCI170, and BSCI171; Or students who have taken courses with comparable content may contact the department.

**Restriction:** Must be in the Honors College Integrated Life Sciences program.

**Credit Only Granted for:** BSCI207, BSCI279D, or HLSC207.

## HLSC217 The British Masters of Science (3 Credits)

The British Masters of Science will look at the British Scientists who have been at the forefront of some of history's greatest advances and have shaped science as we know it today. This London study abroad program will explore these scientific masters in the city where they made their great contributions, visiting the places where they lived and worked to experience the historic foundations of science.

**Restriction:** Must be in the Integrated Life Sciences Honors Program.

## HLSC227 Topics in Scientific Integrity and Medical Ethics (1 Credit)

Explores ethical issues related to scientific research and integrity as well as issues surrounding medical ethics such as use of limited resources, euthanasia, and physician-assisted suicide. This is a topics class, so we won't be going into detail of philosophical arguments, but we may bring them up as relevant. Moreover, especially as applied to medical ethics, there may be no "right" answer. Instead, we would like you to be able to think critically about the issue, and make a moral argument (as opposed to a logistical argument).

**Restriction:** Must be in a major in UGST-HCOL-Integrated Life Sciences Program.

## HLSC280 Integrative and Quantitative Concepts in Biology (3 Credits)

Designed for entering students enrolled in the Honors College Integrated Life Sciences (ILS) program, this course uses an active learning approach to emphasize inquiry, critical thinking, quantitative reasoning, and hands-on data analysis. This course will cover a variety of bioinformatic related topics, including genome assembly and scaffolding, sequence alignment algorithms, epigenetics, a bioinformatic examination of the central dogma in molecular biology, gene finding, proteomic analysis, the evolution of molecules, cells and organisms, molecular switches, and biological networks.

**Prerequisite:** BSCI170.

**Restriction:** Must be in the Honors College Integrated Life Sciences program.

**Credit Only Granted for:** HLSC208 or HLSC280.

**Formerly:** HLSC208.

## HLSC322 Principles of Genetics and Genomics (4 Credits)

Principles and mechanisms of heredity and gene expression, with a focus on the application of genomics to contemporary medicine, biotechnology, and societal issues.

**Prerequisite:** CHEM131, CHEM132, BSCI160, BSCI161, BSCI170, and BSCI171; or must have completed BSCI170, BSCI171 and two semesters of Chemistry.

**Restriction:** Must be in a major in UGST-HCOL-Integrated Life Sciences Program.

**Credit Only Granted for:** HLSC322 or BSCI222.

## HLSC329 Teaching Practicum in the Life Sciences (1 Credit)

A guide and support for the undergraduate teaching assistants (UTAs) in the Integrated Life Sciences (ILS) honors living-learning program.

UTAs will develop a greater understanding of teaching and learning in the life sciences, with a focus on the academic values of ILS, by exploring education research and theory, discussing learning strategies and techniques, and reflecting on their practice. Students take this course while serving as a undergraduate teaching assistant in the Integrated Life Sciences courses.

**Restriction:** By departmental permission only.

**Repeatable to:** 3 credits.

## HLSC374 Mathematical Modeling in Biology (4 Credits)

Students will learn empowering mathematical techniques through the understanding of biological models. Models are chosen from a variety of biological disciplines. Mathematical skills that will be developed along the way include: solving non-linear difference equations, eigenvector analysis, and the implementation of these algorithms as computer models.

**Prerequisite:** MATH131, MATH136, or MATH141.

**Cross-listed with:** BSCI374.

**Credit Only Granted for:** BSCI374, BSCI474, or HLSC374.

**Formerly:** BSCI474.

**Additional Information:** The HLSC374 version of this course is restricted to students in the Honors College Integrated Life Sciences program.