BIOLOGY AT VASSAR
A Guide for First Year Students

BIOL-107: Energy Flow in Biological Systems. Fall 2020 and Spring 2021

Course Description: All life requires the transformation of energy, from plant growth to animal behavior. The focus of this course is to dig deep into the flow of energy through different levels of biological systems, from within cells to the biosphere. We examine energy transformation, energy flow, and energy interactions at all levels of biological organization. At an ecosystem level, we discuss the flow of energy in biogeochemical cycles and the implications for energy flow in the biosphere under global change. Lecture sessions are either 75 minutes twice a week or 50 minutes three times a week plus one 50-minute discussion session a week.

BIOL-108: Information Flow in Biological Systems. Fall 2020 and Spring 2021

Course Description: The focus of this course is on the flow of information through different levels of biological systems, from within cells to the biosphere. At a cellular level, we examine the flow of information within cells (e.g., gene expression) and between cells (e.g., hormones). We then shift to the population and community levels to explore how information is transferred between organisms (e.g., communication, trophic interactions). At an evolutionary level, we discuss the flow of information between (e.g., reproduction) and across generations (e.g., evolutionary mechanisms), as well as the implications for information flow in the biosphere under global change. Lecture sessions are either 75 minutes twice a week or 50 minutes three times a week.

BIOL-108 has a 3-hour lab per week. The overarching theme of the laboratory experience is the consequence of global change on information flow. Students acquire basic laboratory skills by collecting organisms from outdoors and analyzing the sequence of a portion of the genome for species identification. Students learn experimental design, collect and analyze data, connect findings to the primary literature, and present findings in a professional written format. Pre-requisite: Students must complete BIOL-107 before enrolling in BIOL-108.

Information about AP and IB exam scores: Students with documented AP Biology exam score of 5 or an IB HL (higher level) Biology score of 6 or 7 may choose to opt out of BIOL-107 and BIOL-108. Before enrolling in a BIOL-200 level course, such students must complete CHEM-125 and provide documentation of the AP/IB HL score to the Biology Department chair. Students with an IB SL
(standard level) Biology exam score of 6 or 7 will need to enroll in BIOL-107, as Vassar College does not transfer credit from IB SL exams.

**Enrollment:** Any first-year student who cannot enroll in BIOL-107 in the fall due to conflicts with other courses or full course enrollment *should not panic*. They can take it in the spring semester or wait until their sophomore year and still complete the biology major or pre-health requirements.

**Do you have questions about the introductory-course sequence in Biology?**

Please feel free to contact Dr. Mary Ellen Czesak at maczesak@vassar.edu or consult our web page: https://biology.vassar.edu/

### Biology Major Requirements

**Biology 107** - Energy Flow in Biological Systems, with accompanying discussion session

**Biology 108**, with accompanying lab - Information Flow in Biological Systems

**Chemistry 125**, with accompanying lab

(3) 200-level Biology courses from two content areas

(2) 300-level Biology courses

(1) unit of Intensive

(2) additional courses in consultation with your adviser

**200-level Biology course requirement:** Biology offers a diverse set of 200-level courses (intermediate-level). 200-level Biology courses have lectures and a laboratory session each week. Courses fall within one of two content areas:

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The pre-requisites for 200-level courses are the BIOL-107 and BIOL-108 courses [or CHEM-125 for AP (exam score of 5) and IB HL (exam score of 6 or 7) students opting out of BIOL-107 and 108 – see above].

**Intensive requirement:** Intensives are non-classroom based experiential learning opportunities in which students can work with faculty individually or in small groups. These experiences may include research in faculty labs, project-based learning, activities in partnership with community organizations, or skills-based experiences. A group of students can also propose an intensive to the department.