

# Biology Courses: Summer 2024

## **BIOL201001**

### **Ecology and Evolution**

**Olins, Heather C**

**Summer 2024**

Foundational course required for Biology majors with a focus on the ecology and resilience of living systems across all levels of spatial scales. Topics introduced in this course include evolution, population dynamics, behavioral ecology, ecosystems, co-evolution, and human ecology.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL201002**

### **Ecology and Evolution**

**Olins, Heather C**

**Summer 2024**

Foundational course required for Biology majors with a focus on the ecology and resilience of living systems across all levels of spatial scales. Topics introduced in this course include evolution, population dynamics, behavioral ecology, ecosystems, co-evolution, and human ecology.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL201003**

**Ecology and Evolution**

**Olins, Heather C**

**Summer 2024**

Foundational course required for Biology majors with a focus on the ecology and resilience of living systems across all levels of spatial scales. Topics introduced in this course include evolution, population dynamics, behavioral ecology, ecosystems, co-evolution, and human ecology.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL201004**

**Ecology and Evolution**

**Olins, Heather C**

**Summer 2024**

Foundational course required for Biology majors with a focus on the ecology and resilience of living systems across all levels of spatial scales. Topics introduced in this course include evolution, population dynamics, behavioral ecology, ecosystems, co-evolution, and human ecology.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL202501**

### **Medical Terminology**

**DiBenedetto, Lynn M**

**Summer 2024**

The sciences have their own unique language and over ninety percent of the vocabulary comes from Greek and Latin roots. The goal of this course is to familiarize students with the Greek and Latin elements used to construct biomedical terminology in order to gain a better understanding of the words etymologies and meanings. Students will leave this course with: a basic knowledge of medical and clinical terminology broadly relating to human anatomy and physiology, including terminology pertaining to diagnosis and pathophysiology; an understanding of biomedical roots, suffixes, prefixes, and combined forms; a knowledge of how to construct biomedical terms; distinguish common medical abbreviations and acronyms; develop an active vocabulary of selected medical terms. This course will be a 100% on-line, asynchronous experience. Evaluation of successful mastery will include weekly, pre assigned exercises and quizzes. There will be 2-3 presentation assignments using Flip Grid software translating case studies, and a final exam.

**Credits:** 2

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL220001**

### **Microbiology for Health Professionals**

**Dunn, Mary K**

**Summer 2024**

This course is a study of the basic physiological and biochemical activities of bacteria and viruses. Emphasis will be placed on virulence factors and the mechanism by which a variety of microorganisms and viruses establish an infection. The use of anti-viral drugs and antibiotics, the host immune response to microbial infection, and the effectiveness of various vaccination strategies will also be discussed.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL1300 or BIOL1300-1320 or BIOL2000 or a college level introductory biology course

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL220002**

**Microbiology for Health Professionals**

**Dunn, Mary K**

**Summer 2024**

This course is a study of the basic physiological and biochemical activities of bacteria and viruses. Emphasis will be placed on virulence factors and the mechanism by which a variety of microorganisms and viruses establish an infection. The use of anti-viral drugs and antibiotics, the host immune response to microbial infection, and the effectiveness of various vaccination strategies will also be discussed.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL1300 or BIOL1300-1320 or BIOL2000 or a college level introductory biology course

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL230001**

**Biostatistics**

**DaCosta, Jeffrey M**

**Summer 2024**

This course will introduce biology students to the basic statistical techniques that are used in conducting biological and medical research. The course is divided into four parts: (1) descriptive statistics (averages, variability); (2) probability and probability distributions (basic probability theory and the binomial, poisson, and normal distributions); (3) statistical inference (parametric and non-parametric tests); and (4) relationships between variables (simple and multiple regression). Students will become familiar with a standard statistical analysis software package and will critique actual research papers.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL230002**

**Biostatistics**

**DaCosta, Jeffrey M**

**Summer 2024**

This course will introduce biology students to the basic statistical techniques that are used in conducting biological and medical research. The course is divided into four parts: (1) descriptive statistics (averages, variability); (2) probability and probability distributions (basic probability theory and the binomial, poisson, and normal distributions); (3) statistical inference (parametric and non-parametric tests); and (4) relationships between variables (simple and multiple regression). Students will become familiar with a standard statistical analysis software package and will critique actual research papers.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL230003**

**Biostatistics**

**DaCosta, Jeffrey M**

**Summer 2024**

This course will introduce biology students to the basic statistical techniques that are used in conducting biological and medical research. The course is divided into four parts: (1) descriptive statistics (averages, variability); (2) probability and probability distributions (basic probability theory and the binomial, poisson, and normal distributions); (3) statistical inference (parametric and non-parametric tests); and (4) relationships between variables (simple and multiple regression). Students will become familiar with a standard statistical analysis software package and will critique actual research papers.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL230004**

**Biostatistics**

**DaCosta, Jeffrey M**

**Summer 2024**

This course will introduce biology students to the basic statistical techniques that are used in conducting biological and medical research. The course is divided into four parts: (1) descriptive statistics (averages, variability); (2) probability and probability distributions (basic probability theory and the binomial, poisson, and normal distributions); (3) statistical inference (parametric and non-parametric tests); and (4) relationships between variables (simple and multiple regression). Students will become familiar with a standard statistical analysis software package and will critique actual research papers.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL303001**

**Comparative Vertebrate Physiology**

**Kenaley, Christopher P**

**Summer 2024**

This course is intended for Biology, Psychology, and Biochemistry majors and students in the pre-medical program seeking a broad overview of human physiology. This course will offer a comprehensive exploration of fundamental life systems with a primary emphasis on human physiology. The chemical and physical processes common to all living organisms, including hemodynamics, respiration, circulation, acid/base regulation, synaptic transmission, kidney and muscle function will be discussed. Also included are related topics on development of the organism and functional aspects of the immune system in host defense strategies.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL303002**

### **Comparative Vertebrate Physiology**

**Kenaley, Christopher P**

**Summer 2024**

This course is intended for Biology, Psychology, and Biochemistry majors and students in the pre-medical program seeking a broad overview of human physiology. This course will offer a comprehensive exploration of fundamental life systems with a primary emphasis on human physiology. The chemical and physical processes common to all living organisms, including hemodynamics, respiration, circulation, acid/base regulation, synaptic transmission, kidney and muscle function will be discussed. Also included are related topics on development of the organism and functional aspects of the immune system in host defense strategies.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring



**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL306001**

**Foundations in Genetics**

**Dunn, Rebecca K**

**Summer 2024**

TBD

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL306002**

**Foundations in Genetics**

**Dunn, Rebecca K**

**Summer 2024**

TBD

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL403001****Deep Sea Biology****Olins, Heather C****Summer 2024**

Roughly 80% of habitable space on this planet is in the ocean below 1000 meters where sunlight never reaches. In this course we will dive into this rarely visited habitat that occupies the majority of our biosphere. We will take an interdisciplinary approach, as studying the deep requires the integration of geology, chemistry, ecology, physiology, and engineering. We will investigate fundamental aspects of biology such as how organisms adapt to challenges posed by their environment. Students will also gain an appreciation for how much of the planet remains unexplored and learn how scientists study the inaccessible ecosystems of the deep.

**Credits:** 3**Room and Schedule:** On-line Asynchronous**Satisfies Core Requirement:** None**Prerequisites:** BIOL2010**Corequisites:** None**Cross-listed with:** None**Frequency:** Annually**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL403002****Deep Sea Biology****Olins, Heather C****Summer 2024**

Roughly 80% of habitable space on this planet is in the ocean below 1000 meters where sunlight never reaches. In this course we will dive into this rarely visited habitat that occupies the majority of our biosphere. We will take an interdisciplinary approach, as studying the deep requires the integration of geology, chemistry, ecology, physiology, and engineering. We will investigate fundamental aspects of biology such as how organisms adapt to challenges posed by their environment. Students will also gain an appreciation for how much of the planet remains unexplored and learn how scientists study the inaccessible ecosystems of the deep.

**Credits:** 3**Room and Schedule:** On-line Asynchronous**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2010

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL702001**

### **Statistics for Biologists**

**DaCosta, Jeffrey M**

**Summer 2024**

GRAD level Biostats course covers Intro vocabulary, Figures, Descriptive statistics for mode, spread, and uncertainty, probability Hypothesis testing, Analyzing proportions (binomial test), Analyzing count data (chi-sq, odds ratio, relative risk), Analyzing means (various t-tests, one-way ANOVA, ANOVA post-hoc tests, nonparametric alternatives) using R, Linear correlation and regression, Intro Python, Intro Linux, working on computer cluster, Displaying data, Independent projects (e.g., automating a repetitive research task, re-creating an analysis from a paper)

**Credits:** 2

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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## **BIOL710101**

### **Readings and Research**

**Meyer, Michelle M**

**Summer 2024**

Intended for M.S. students who are acquiring a knowledge of the literature and experimental methods associated with their research projects under the guidance of a faculty research advisor. Participation in research group meetings, journal clubs, data clubs, etc., may be required. A maximum of six credits may be earned from this course.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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## Biology Courses: Fall 2024

**BIOL106001**

**Gateway Topic Seminar for STEM**

**Folker, Eric S**

**Fall 2024**

TBD

**Credits:** 1

**Room and Schedule:** 245 Beacon Street Room 102 M 04:30PM-05:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL110001**

**General Biology**

**Annunziato, Anthony T, Phd;Seyfried, Thomas N, Phd**

**Fall 2024**

Designed for non-science majors who desire an introduction to cell and molecular biology, this course is also suggested for students who may be interested in the Biology major but lack sufficient preparation to enroll directly into BIOL 2000. Topics include the chemistry of life; biological membranes; cellular metabolism; cell structure; cell division; DNA replication/RNA transcription; protein synthesis; genetics/evolution. Lectures include discussions of the scientific method and current applications of biological investigations. Note: this course does not fulfill any requirement for the biology major, biochemistry major, or the pre-medical program.

**Credits:** 3

**Room and Schedule:** Higgins Hall 300 MWF 11:00AM-11:50AM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL121001**

**Teaching the Biosphere**

**Hake, Laura E**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL130001****Anatomy and Physiology 1****Mott, Devin****Fall 2024**

This course lays the foundation for the understanding of human anatomy and physiology. The first portion of the course covers cellular and molecular aspects of eukaryotic cell function: basic chemistry, macromolecules, cell structure, membrane transport, metabolism, gene expression, cell cycle control, and genetics. The course continues with the study of several organ systems. Beginning with the Integument, which is followed by the Skeletal and Muscular Systems, and ending this first semester with the Nervous System. The cellular and molecular basis for the functions of these systems is an integral element of this portion of the course.

**Credits:** 3**Room and Schedule:** Mcguinn Hall 121 TuTh 08:00AM-09:15AM**Satisfies Core Requirement:** Natural Science**Prerequisites:** None**Corequisites:** BIOL1310**Cross-listed with:** None**Frequency:** Every Fall, Every Summer**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL131001****Anatomy and Physiology Lab 1****Scheintaub, Hilary****Fall 2024**

This course is restricted to School of Nursing students. Other students may be admitted only during the course drop/add period on a seat-available basis. Laboratory exercises intended to familiarize students with the various structures and principles discussed in BIOL 1300 through the use of anatomical models, physiological experiments, and limited dissection.

**Credits:** 1**Room and Schedule:** Higgins Hall 390 M 09:00AM-10:50AM**Satisfies Core Requirement:** Natural Science**Prerequisites:** None**Corequisites:** BIOL1300**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL131002**

### **Anatomy and Physiology Lab 1**

**Scheintaub, Hilary**

**Fall 2024**

This course is restricted to School of Nursing students. Other students may be admitted only during the course drop/add period on a seat-available basis. Laboratory exercises intended to familiarize students with the various structures and principles discussed in BIOL 1300 through the use of anatomical models, physiological experiments, and limited dissection.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 M 11:00AM-12:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** BIOL1300

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL131003**

### **Anatomy and Physiology Lab 1**

**Scheintaub, Hilary**

**Fall 2024**

This course is restricted to School of Nursing students. Other students may be admitted only during the course drop/add period on a seat-available basis. Laboratory exercises intended to familiarize students with the various structures and principles discussed in BIOL 1300 through the use of anatomical models, physiological experiments, and limited dissection.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 M 02:00PM-03:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** BIOL1300

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL131004**

### **Anatomy and Physiology Lab 1**

**Scheintaub, Hilary**

**Fall 2024**

This course is restricted to School of Nursing students. Other students may be admitted only during the course drop/add period on a seat-available basis. Laboratory exercises intended to familiarize students with the various structures and principles discussed in BIOL 1300 through the use of anatomical models, physiological experiments, and limited dissection.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 M 04:00PM-05:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** BIOL1300

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL131005**

### **Anatomy and Physiology Lab 1**

**Scheintaub, Hilary**

**Fall 2024**



This course is restricted to School of Nursing students. Other students may be admitted only during the course drop/add period on a seat-available basis. Laboratory exercises intended to familiarize students with the various structures and principles discussed in BIOL 1300 through the use of anatomical models, physiological experiments, and limited dissection.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 W 09:00AM-10:50AM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** BIOL1300

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL131006**

### **Anatomy and Physiology Lab 1**

**Scheintaub, Hilary**

**Fall 2024**

This course is restricted to School of Nursing students. Other students may be admitted only during the course drop/add period on a seat-available basis. Laboratory exercises intended to familiarize students with the various structures and principles discussed in BIOL 1300 through the use of anatomical models, physiological experiments, and limited dissection.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 W 11:00AM-12:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** BIOL1300

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL131007**

## **Anatomy and Physiology Lab 1**

**Scheintaub, Hilary**

**Fall 2024**

This course is restricted to School of Nursing students. Other students may be admitted only during the course drop/add period on a seat-available basis. Laboratory exercises intended to familiarize students with the various structures and principles discussed in BIOL 1300 through the use of anatomical models, physiological experiments, and limited dissection.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 W 02:00PM-03:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** BIOL1300

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL131008**

### **Anatomy and Physiology Lab 1**

**Scheintaub, Hilary**

**Fall 2024**

This course is restricted to School of Nursing students. Other students may be admitted only during the course drop/add period on a seat-available basis. Laboratory exercises intended to familiarize students with the various structures and principles discussed in BIOL 1300 through the use of anatomical models, physiological experiments, and limited dissection.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 W 04:00PM-05:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** BIOL1300

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL170201****Human Biology and Disease****Yopp, James B****Fall 2024**

This course will discuss human biology and disease.

**Credits:** 3**Room and Schedule:** Carney Hall 202 TuTh 01:30PM-02:45PM**Satisfies Core Requirement:** Natural Science**Prerequisites:** None**Corequisites:** None**Cross-listed with:** None**Frequency:** Annually**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL200001****Molecules and Cells****Hake, Laura E****Fall 2024**

Foundational course required for Biology majors that introduces students to living systems at the molecular and cellular level of organization. Topics introduced in this course include basic cellular biochemistry, gene regulation, cellular organization and metabolism, and cell signaling and genetics.

**Credits:** 3**Room and Schedule:** Merkert Chemistry Center 127 TuTh 01:30PM-02:45PM**Satisfies Core Requirement:** Natural Science**Prerequisites:** CHEM1109 may be taken concurrently or equivalent or permission of the department.**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall, Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL200002****Molecules and Cells****Taghian, Danielle****Fall 2024**

Foundational course required for Biology majors that introduces students to living systems at the molecular and cellular level of organization. Topics introduced in this course include basic cellular biochemistry, gene regulation, cellular organization and metabolism, and cell signaling and genetics.

**Credits:** 3**Room and Schedule:** Fulton Hall 511 (Auditorium) MWF 12:00 Noon-12:50PM**Satisfies Core Requirement:** Natural Science**Prerequisites:** CHEM1109 may be taken concurrently or equivalent or permission of the department.**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall, Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL201001****Ecology and Evolution****Olins, Heather C****Fall 2024**

Foundational course required for Biology majors with a focus on the ecology and resilience of living systems across all levels of spatial scales. Topics introduced in this course include evolution, population dynamics, behavioral ecology, ecosystems, co-evolution, and human ecology.

**Credits:** 3**Room and Schedule:** Devlin Hall 8 TuTh 09:00AM-10:15AM**Satisfies Core Requirement:** Natural Science**Prerequisites:** None**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204001**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 3

**Room and Schedule:** Higgins Hall 263 MW 12:00 Noon-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204002**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 370 MW 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204003**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 380 MW 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204004**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 375 MW 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204005**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 3

**Room and Schedule:** Higgins Hall 263 MW 04:30PM-05:20PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204006**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 370 MW 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring



**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204007**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 380 MW 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204008**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 375 MW 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204009**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 3

**Room and Schedule:** Higgins Hall 263 TuTh 12:00 Noon-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204010**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 370 TuTh 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204011**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 380 TuTh 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204012**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 375 TuTh 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204013**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 3

**Room and Schedule:** Higgins Hall 263 TuTh 04:30PM-05:20PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204014**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 370 TuTh 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204015**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 380 TuTh 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204016**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Fall 2024**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 375 TuTh 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL205001**

**Gateway Biology Discussion I**

**Olins, Heather C**

**Fall 2024**

This one-credit discussion course supports Gateway students enrolled in BIOL2010 through discussion and review of course material, practicing evidence-based study skills, and building a feeling of community within the larger lecture course. Attendance and active participation are required as is concurrent enrollment in BIOL2010.

**Credits:** 1

**Room and Schedule:** Higgins Hall 280 M 01:00PM-01:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL205002**

### **Gateway Biology Discussion I**

**Olins, Heather C**

**Fall 2024**

This one-credit discussion course supports Gateway students enrolled in BIOL2010 through discussion and review of course material, practicing evidence-based study skills, and building a feeling of community within the larger lecture course. Attendance and active participation are required as is concurrent enrollment in BIOL2010.

**Credits:** 1

**Room and Schedule:** Higgins Hall 280 M 02:00PM-02:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL220001**



## **Microbiology for Health Professionals**

**Eberhard, Jeremy J**

**Fall 2024**

This course is a study of the basic physiological and biochemical activities of bacteria and viruses. Emphasis will be placed on virulence factors and the mechanism by which a variety of microorganisms and viruses establish an infection. The use of anti-viral drugs and antibiotics, the host immune response to microbial infection, and the effectiveness of various vaccination strategies will also be discussed.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 MWF 01:00PM-01:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL1300 or BIOL1300-1320 or BIOL2000 or a college level introductory biology course

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL221001**

### **Microbiology for Health Professionals Laboratory**

**Scheintaub, Hilary**

**Fall 2024**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 380 F 11:00AM-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL221002**

**Microbiology for Health Professionals Laboratory**

**Scheintaub, Hilary**

**Fall 2024**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 380 F 02:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL221003**

**Microbiology for Health Professionals Laboratory**

**Scheintaub, Hilary**

**Fall 2024**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 F 11:00AM-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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#### **BIOL221004**

##### **Microbiology for Health Professionals Laboratory**

**Scheintaub, Hilary**

**Fall 2024**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 F 02:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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#### **BIOL221005**

##### **Microbiology for Health Professionals Laboratory**

**Scheintaub, Hilary**

**Fall 2024**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 375 F 11:00AM-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL221006**

### **Microbiology for Health Professionals Laboratory**

**Scheintaub, Hilary**

**Fall 2024**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 375 F 02:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL230001**

### **Biostatistics**

**DaCosta, Jeffrey M**

**Fall 2024**

This course will introduce biology students to the basic statistical techniques that are used in conducting biological and medical research. The course is divided into four parts: (1) descriptive statistics (averages, variability); (2) probability and probability distributions (basic probability theory and the binomial, poisson, and normal distributions); (3) statistical inference (parametric and non-parametric tests); and (4) relationships between variables (simple and multiple regression). Students will become familiar with a standard statistical analysis software package and will critique actual research papers.

**Credits:** 3

**Room and Schedule:** Higgins Hall 300 MWF 10:00AM-10:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL303001**

### **Comparative Vertebrate Physiology**

**Kenaley, Christopher P**

**Fall 2024**

This course is intended for Biology, Psychology, and Biochemistry majors and students in the pre-medical program seeking a broad overview of human physiology. This course will offer a comprehensive exploration of fundamental life systems with a primary emphasis on human physiology. The chemical and physical processes common to all living organisms, including hemodynamics, respiration, circulation, acid/base regulation, synaptic transmission, kidney and muscle function will be discussed. Also included are related topics on development of the organism and functional aspects of the immune system in host defense strategies.

**Credits:** 3

**Room and Schedule:** Devlin Hall 8 MWF 01:00PM-01:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL304001**

**Cell Biology**

**Burgess, David R**

**Fall 2024**

This course is designed to provide students with a strong foundation in the molecular biology of the cell. Topics covered in the course include cellular biochemistry, regulation of gene expression, subcellular organization, regulation of the cell cycle, membrane trafficking, cell-substrate interactions, cytoskeleton, cancer, and cell signaling. It serves as excellent preparation for more advanced courses in cell biology, molecular biology, developmental biology, and genetics.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL305001**

**Genetics**

**Dunn, Rebecca K**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 4

**Room and Schedule:** Higgins Hall 300 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL305002**

### **Genetics**

**Dunn, Rebecca K**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0

**Room and Schedule:** Higgins Hall 275 W 02:00PM-02:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL305003**

### **Genetics**

**Dunn, Rebecca K**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0

**Room and Schedule:** Higgins Hall 275 W 03:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL305004**

### **Genetics**

**Dunn, Rebecca K**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0

**Room and Schedule:** Higgins Hall 275 W 04:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL305005**

### **Genetics**

**Dunn, Rebecca K**

**Fall 2024**



This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0

**Room and Schedule:** Higgins Hall 275 W 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL305006**

### **Genetics**

**Dunn, Rebecca K**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0

**Room and Schedule:** Higgins Hall 275 W 06:00PM-06:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL305007**

### **Genetics**

**Losick-Yang, Vicki P**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 4**Room and Schedule:** Higgins Hall 300 TuTh 12:00 Noon-01:15PM**Satisfies Core Requirement:** None**Prerequisites:** BIOL2000**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL305008****Genetics****Losick-Yang, Vicki P****Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0**Room and Schedule:** Higgins Hall 263 W 03:00PM-03:50PM**Satisfies Core Requirement:** None**Prerequisites:** BIOL2000**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL305009****Genetics**

**Losick-Yang, Vicki P**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0

**Room and Schedule:** Higgins Hall 260 W 04:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL305010**

**Genetics**

**Losick-Yang, Vicki P**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0

**Room and Schedule:** Higgins Hall 260 W 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL305011**

## **Genetics**

**Losick-Yang, Vicki P**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0

**Room and Schedule:** Higgins Hall 280 W 04:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL305012**

## **Genetics**

**Losick-Yang, Vicki P**

**Fall 2024**

This course focuses on genetics of microbial and eukaryotic organisms. Topics covered in the course include transmission genetics, chromosome structure, regulation of gene expression, population genetics, multifactorial inheritance and an introduction to genomics.

**Credits:** 0

**Room and Schedule:** Higgins Hall 280 W 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL314001****Research Methods in Organismal Biology****Kenaley, Christopher P****Fall 2024**

Organismal biology is the study of living systems of all scales that shape the structure, function, ecology, and evolution of individual organisms. Experiments that elucidate how organisms respond to biotic and abiotic environmental stimulus over broad time scales--from changes in behavior to adaptation--are crucial to understanding biological diversity. In this course we'll explore the concepts and analytical tools that frame experimental research in organismal biology. Through group projects and active learning exercises, students will first make hypotheses concerning how organisms respond in time, space, and behavior to changes in environment and then design experiments and instruments that produce data to evaluate these hypotheses. Topics covered will include reconstructing phylogenetic history and the evolution of organismal form and function, evaluating form-function relationships, and the correlates of spatial and temporal distribution of organisms. In addition, the development of an analytical toolbox--specifically, learning the principles of data science and statistical analysis--is a central theme of this course.

**Credits:** 3**Room and Schedule:** Higgins Hall 310 MWF 10:00AM-10:50AM**Satisfies Core Requirement:** None**Prerequisites:** BIOL2300 Biostatistics is strongly recommended. BIOL3030 Comparative Vertebrate Physiology is recommended**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL407501****Research in Molecular Phylogenetics****DaCosta, Jeffrey M****Fall 2024**

A phylogenetic tree is a diagram that depicts the relationships among a set of taxa or genes, and is a critical tool for many analyses of evolutionary history. This course covers the basic methods of phylogenetic inference from DNA sequence data, including data collection, alignment, and tree building using parsimony, distance, likelihood, and Bayesian techniques. Lectures will introduce the logical basis of these methods, and computational labs will give students hands-on experience with these methods using a variety of phylogenetic software packages.

**Credits:** 3

**Room and Schedule:** Higgins Hall 470 MW 12:00 Noon-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** Pre-requisites: BIOL3050 Genetics or BIOL3150 Introduction to Genomics  
Recommended but not required: BIOL4200 Introduction to Bioinformatics

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL409001**

### **Virology**

**Eberhard, Jeremy J**

**Fall 2024**

This course will consider eukaryotic DNA and RNA viruses that are important in human disease. Basic principles of virus structure, host cell entry and the molecular biology of virus life cycles will be considered in the context of infectious disease. Viruses to be examined include Influenza, cancer-related viruses such as the Human Papilloma Virus, HIV, and emerging viruses such as Ebola and the hantaviruses. The host immune response to viral infection and the effectiveness of various vaccination strategies will also be discussed.

**Credits:** 3

**Room and Schedule:** Stokes Hall 195S MWF 09:00AM-09:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL412001**

**Inflammation and Disease**

**Chiles, Thomas;Taghian, Danielle**

**Fall 2024**

Inflammation is the body's normal immune response to a variety of injuries. The principal aim of this course is to explore the relationship between the inflammatory response and a host of human diseases, including cardiovascular, autoimmune, musculoskeletal and digestive medical conditions, and cancer. The biology and physiology of acute inflammation, triggers of the immune response, onset of chronic inflammation and the role of chronic inflammation in the development of disease will be discussed using primary literature.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 214 MW 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL 2000, BIOL 2040 and additional 3000-level and above coursework in molecular and cellular biology.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL414001**

**Microbiology**

**Williams, Zachary**

**Fall 2024**

This course provides a foundation in molecular cell biology for biology majors, focusing on bacteria, viruses, immunology, and host/microbe relationships. Bacterial structure and function are addressed in terms of physiology, genetics, and biochemistry. Gene expression, replication, and transmission are examined in a variety of eukaryotic viruses. A review of the innate and adaptive phases of the immune response is presented with an emphasis on pathogen recognition, cellular communication, and lymphocyte development. The course concludes with selected topics on pathogenesis, epidemiology, and microbial ecology.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 MWF 09:00AM-09:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000; BIOL2040 is recommended and can be taken concurrently.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL420001**

### **Introduction to Bioinformatics**

**Clote, Peter G**

**Fall 2024**

Bioinformatics is an emerging field at the intersection of biology, mathematics, and computer science. It harnesses the power and speed of computers to analyze the molecules essential for life. This introductory course requires that students have a basic understanding of molecular biology, genetics, and the Internet, but it does not require extensive background in mathematics or programming. Students will learn bioinformatic tools from the public domain, public databases, and simple programming tasks in PYTHON.

**Credits:** 3

**Room and Schedule:** Fulton Hall 135 MW 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL3150

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate



**Comments:** None

**Status:** Offered

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**BIOL426001**

**Human Anatomy with Lab**

**DiBenedetto, Lynn M**

**Fall 2024**

In this course, students will explore and compare the form and function of representative members of the five vertebrate classes. Evolutionary similarities and differences in form and function will be investigated, as will both the selective pressures, and non-selective constraints that have contributed to vertebrate structure. The course will conceptually integrate vertebrate anatomy with developmental biology, evolutionary biology, and ecology, and will provide skills valuable to careers in a range of biological disciplines, including molecular cell biology, medicine, evolutionary biology, and ecology.

**Credits:** 4

**Room and Schedule:** Higgins Hall 300 MW 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL426002**

**Human Anatomy with Lab**

**DiBenedetto, Lynn M**

**Fall 2024**

In this course, students will explore and compare the form and function of representative members of the five vertebrate classes. Evolutionary similarities and differences in form and function will be investigated, as will both the selective pressures, and non-selective constraints that have contributed to vertebrate structure. The course will conceptually integrate vertebrate anatomy with developmental biology, evolutionary biology, and ecology, and will provide skills valuable to careers in a range of biological disciplines, including molecular cell biology, medicine, evolutionary biology, and ecology.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Tu 11:00AM-01:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL426003**

### **Human Anatomy with Lab**

**DiBenedetto, Lynn M**

**Fall 2024**

In this course, students will explore and compare the form and function of representative members of the five vertebrate classes. Evolutionary similarities and differences in form and function will be investigated, as will both the selective pressures, and non-selective constraints that have contributed to vertebrate structure. The course will conceptually integrate vertebrate anatomy with developmental biology, evolutionary biology, and ecology, and will provide skills valuable to careers in a range of biological disciplines, including molecular cell biology, medicine, evolutionary biology, and ecology.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Tu 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL426004**

**Human Anatomy with Lab**

**DiBenedetto, Lynn M**

**Fall 2024**

In this course, students will explore and compare the form and function of representative members of the five vertebrate classes. Evolutionary similarities and differences in form and function will be investigated, as will both the selective pressures, and non-selective constraints that have contributed to vertebrate structure. The course will conceptually integrate vertebrate anatomy with developmental biology, evolutionary biology, and ecology, and will provide skills valuable to careers in a range of biological disciplines, including molecular cell biology, medicine, evolutionary biology, and ecology.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Tu 04:00PM-06:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL426005**

**Human Anatomy with Lab**

**DiBenedetto, Lynn M**

**Fall 2024**

In this course, students will explore and compare the form and function of representative members of the five vertebrate classes. Evolutionary similarities and differences in form and function will be investigated, as will both the selective pressures, and non-selective constraints that have contributed to vertebrate structure. The course will conceptually integrate vertebrate anatomy with developmental biology, evolutionary biology, and ecology, and will provide skills valuable to careers in a range of biological disciplines, including molecular cell biology, medicine, evolutionary biology, and ecology.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Th 11:00AM-01:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL426006**

### **Human Anatomy with Lab**

**DiBenedetto, Lynn M**

**Fall 2024**

In this course, students will explore and compare the form and function of representative members of the five vertebrate classes. Evolutionary similarities and differences in form and function will be investigated, as will both the selective pressures, and non-selective constraints that have contributed to vertebrate structure. The course will conceptually integrate vertebrate anatomy with developmental biology, evolutionary biology, and ecology, and will provide skills valuable to careers in a range of biological disciplines, including molecular cell biology, medicine, evolutionary biology, and ecology.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Th 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL426007**

**Human Anatomy with Lab**

**DiBenedetto, Lynn M**

**Fall 2024**

In this course, students will explore and compare the form and function of representative members of the five vertebrate classes. Evolutionary similarities and differences in form and function will be investigated, as will both the selective pressures, and non-selective constraints that have contributed to vertebrate structure. The course will conceptually integrate vertebrate anatomy with developmental biology, evolutionary biology, and ecology, and will provide skills valuable to careers in a range of biological disciplines, including molecular cell biology, medicine, evolutionary biology, and ecology.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Th 04:00PM-06:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL429001**

**Metabolic Regulation and Human Disease**

**Altindis, Emrah**

**Fall 2024**

The increasing knowledge about the metabolic pathways has deepened our understanding of human disease. Using studies from recent research and review articles, we will cover a variety of domains in the first half of the semester. These topics include insulin signaling/resistance, regulation of metabolism by different regulatory pathways and endoplasmic reticulum stress. We will also investigate important regulatory hormones including incretins, leptin and adiponectin and the tissue at the center of obesity, adipose tissue. Based on this foundation, we will focus on metabolic impairments in different human diseases. Specifically, we will be reading from the primary literature and from other relevant sources (e.g., review articles) on metabolic syndrome, pancreas function/dysfunction, type 2 diabetes, type 1 diabetes, gestational diabetes, MODY and obesity. After we complete this section, we will focus on the link between metabolic diseases and other important diseases including cancer and neurological diseases/dysfunction. Lastly, we will study the effects of racism and inequities in society on human health. At the end of the course, the students will develop a deep understanding of basic mechanisms in metabolic disease. This course is based on active teaching/learning principles and the instructor will be the guide on the side, rather than sage on the stage. Thus, the students are expected to actively participate in Discussions in each class.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000 and BIOL2040. Additional coursework in cell biology or biochemistry is recommended.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL444001**

**Vaccination and Immunity**

**Fofana, Ismael B**

**Fall 2024**

No one could have imagined the devastating effects of Severe Acute Respiratory Syndrome 2 (SARS-CoV-2), the etiological agent of coronavirus disease 2019 (COVID-19). The impact and scale were unprecedented, especially that the richest and most advanced countries of the globe were the most affected. With a record-breaking speed of less than a year, 3 of COVID-19 vaccines (Pfizer-BioNTech, Moderna, and Oxford/AstraZeneca) and later Johnson & Johnson/Janssen, received approval in Europe and the US. Millions of lives were saved but vaccine hesitancy is still prevalent worldwide. It is imperative that lessons be learned from COVID-19 and other major pandemics such as Zika, Influenza, Ebola and HIV. 1- review basic concepts of human-pathogen interactions; 2- learn the basic principles of immunity and vaccination; 3- and discuss a few major infectious diseases through case studies

**Credits:** 3

**Room and Schedule:** Campion Hall 204 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000 and additional course work in molecular cell biology. Recommended: Microbiology or related course work.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL454001**

### **Neuroscience**

**Nystuen, Arne M**

**Fall 2024**

This class will cover molecular neuroscience and neuroanatomy in a clinical and pharmaceutical context. Anatomy topics will include the structure, function, and pathology for the brain and associated nerves and vasculature. Sensory and motor systems will be discussed with special attention to the visual system, where genetic disease and current therapeutic strategies will be discussed in depth. We will cover pathology associated with neurodegenerative disease and the current clinical trials within this disease group.

**Credits:** 3

**Room and Schedule:** Higgins Hall 300 TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000 and additional coursework in molecular cell biology or biochemistry.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **BIOL483001**

#### **Research in Molecular Biology Lab**

**Fofana, Ismael B**

**Fall 2024**

Satisfies the advanced experience requirement for the Biology major. An advanced project laboratory course for hands-on training in the experimental techniques of molecular biology under faculty supervision. In addition to formal lab training and discussions, students will have access to the lab outside class hours to work on projects intended to produce publication quality data. The research project will focus on environmentally-mediated gene expression in the organism *Pseudomonas fluorescens*. Methods taught include: DNA cloning techniques, DNA sequencing, polymerase chain reaction, and the use national databases for research and analysis. It is ideal for students who desire a solid introduction to hypothesis-driven research in molecular biology through practical training.

**Credits:** 3

**Room and Schedule:** Higgins Hall 570 TuTh 02:00PM-05:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **BIOL489001**

#### **Investigations in Cellular Re-Programming**

**Connolly, Timothy J**

**Fall 2024**



Satisfies the advanced experience requirement for the Biology major. Induced pluripotent stem cells, iPSCs, are cells that can be generated from adult cells such as skin fibroblasts. Once generated, iPSCs can be directed to differentiate into any cell and offer exciting models for disease research. This laboratory course will teach students the techniques used to reprogram adult murine fibroblasts into pluripotent stem cells and their subsequent differentiation into cardiac and neuronal lineages. Resulting cell lines will be characterized using molecular and cell biology techniques and students will work to create novel cellular disease models to progress particular disease research.

**Credits:** 3

**Room and Schedule:** Higgins Hall 575 TuTh 01:30PM-04:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL490201**

**Independent Study**

**Chiles, Thomas**

**Fall 2024**

TBD.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL492101****Advanced Independent Research****Gubbels, Johannes M****Fall 2024**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall, Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL492102****Advanced Independent Research****Meyer, Michelle M****Fall 2024**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall, Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL492103****Advanced Independent Research****Folker, Eric S****Fall 2024**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL492104****Advanced Independent Research****Landrigan, Philip J****Fall 2024**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL492105****Advanced Independent Research****Dept, Dept****Fall 2024**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL492106****Advanced Independent Research****Dept, Dept****Fall 2024**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL496001**

**Undergraduate Research**

**Altindis, Emrah**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496002**

**Undergraduate Research**

**DaCosta, Jeffrey M**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496003**

**Undergraduate Research**

**Folker, Eric S**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496004**

**Undergraduate Research**

**Gubbels, Johannes M**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496005**

**Undergraduate Research**

**Hoffman, Charles**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496006**

**Undergraduate Research**

**Johnson, Welkin E**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496007**

**Undergraduate Research**

**Kenaley, Christopher P**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None  
**Prerequisites:** Permission of Department  
**Corequisites:** None  
**Cross-listed with:** None  
**Frequency:** Every Fall,Every Spring  
**Student Level:** Undergraduate  
**Comments:** None  
**Status:** Offered

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**BIOL496008**  
**Undergraduate Research**  
**Losick-Yang, Vicki P**  
**Fall 2024**  
TBD

**Credits:** 3  
**Room and Schedule:** By Arrangement  
**Satisfies Core Requirement:** None  
**Prerequisites:** Permission of Department  
**Corequisites:** None  
**Cross-listed with:** None  
**Frequency:** Every Fall,Every Spring  
**Student Level:** Undergraduate  
**Comments:** None  
**Status:** Offered

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**BIOL496009**  
**Undergraduate Research**  
**McMenamin, Sarah K**  
**Fall 2024**  
TBD

**Credits:** 3  
**Room and Schedule:** By Arrangement  
**Satisfies Core Requirement:** None  
**Prerequisites:** Permission of Department  
**Corequisites:** None



**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496010**

**Undergraduate Research**

**Meyer, Michelle M**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496011**

**Undergraduate Research**

**Momeni, Babak**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496012**

**Undergraduate Research**

**Connolly, Timothy J**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496013**

**Undergraduate Research**

**Seyfried, Thomas N, Phd**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496014****Undergraduate Research****DaCosta, Jeffrey M;Judson, Bret****Fall 2024**

TBD

**Credits:** 3**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL496015****Undergraduate Research****Williams, Kenneth C****Fall 2024**

TBD

**Credits:** 3**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL496016****Undergraduate Research****Fofana, Ismael B**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496017**

**Undergraduate Research**

**Judson, Bret**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496018**

**Undergraduate Research**

**Whitney, James**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496019**

**Undergraduate Research**

**Das, Maitreyi**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496301**

**Undergraduate Research Investigations**

**Fofana, Ismael B**

**Fall 2024**

TBD

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL501001**

### **Nobel Prize Winning Research in Medicine or Physiology**

**Burgess, David R**

**Fall 2024**

Satisfies the advanced experience requirement for the Biology major. In this course we will discuss primary research literature in the fields of cell and developmental biology that have led to the award of the Nobel Prize. Each student will select a primary paper cited by the Nobel Foundation as justification for the award together with a supportive current review on the topic and present the background information to the class. The primary paper will be discussed at the following class period, with all students having defined responsibilities for discussion of the figures and data.

**Credits:** 2

**Room and Schedule:** Stokes Hall 105S M 03:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL3040 or related course work in molecular cell biology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL504001**

### **Topics in Developmental Biology**

**McMenamin, Sarah K**

**Fall 2024**

Satisfies the advanced experience requirement for the Biology major. The field of molecular developmental biology asks: How do molecules and cells coordinate and function to produce organisms? How can these processes be modified in the context of disease and evolutionary change? With the goal of better understanding current research in the field of developmental biology, we will read primary literature focusing on a variety of techniques (molecular, cellular, genetic, biochemical) and numerous systems (tissue culture, mouse, fly, frog, zebrafish, and others). The course will focus on developing students' ability to comprehend and critically evaluate recent primarily literature, present scientific perspectives, and actively participate in scientific dialogue.

**Credits:** 2

**Room and Schedule:** Higgins 416;M 10:00AM-11:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL 2040 and additional coursework in molecular cells biology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Both

**Comments:** None

**Status:** Offered

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**BIOL510001**

**Microbiome and Human Disease**

**Altindis, Emrah**

**Fall 2024**

Satisfies the advanced experience requirement for the Biology major. For thousands of years, humans have thought of themselves as single autonomous organisms. With new sequencing technologies and experiments, we are learning that the human microbiome and commensal organisms are an important aspect of host biology, and change the idea of who we really are. Recent data suggest that we are more than *Homo sapiens*, but a symbiotic-organism that is surrounded with trillions of microorganisms in all surfaces. Recent studies suggest that the human microbiome and commensal microbes have important roles in human health and disease. Indeed, the gut microbiota aid in normal digestion, metabolism of nutrients and drugs, and development of the gut and immune system. Reduced bacterial diversity, as well as alterations in the microbiota composition, have been associated not only with gastrointestinal disease, but also obesity, diabetes, and metabolic syndrome. Direct evidence now suggests that transfer of the microbiome can play a role in host phenotypes, homeostasis, behavior, and disease pathogenesis. Using current scientific literature and reviews, we will investigate the role of the microbiome in human health and disease. Students will make short presentations of the papers, and the class will discuss the methodology and findings of the papers.

**Credits:** 2

**Room and Schedule:** Higgins Hall 552 Tu 11:00AM-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000 Molecules and Cells and additional course work in molecular cell biology. Microbiology and/or Immunology strongly recommended.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL513001**

**Environmental Disruptors of Development**

**Hake, Laura E**

**Fall 2024**



Satisfies the advanced experience requirement for the Biology major. More than 100,000 chemicals are manufactured and may end up as environmental pollutants. Some have toxic effects at high concentrations and protection plans are already in place. However, embryonic, fetal or neonatal exposure to low "safe" levels of numerous pollutants can (1) induce subtle changes in developmental programs regulated by steroid hormones; (2) increase the reproductive, immune, metabolic or cognitive disorders and (3) increase the risk of adult-onset disorders (breast cancer, prostate cancer, diabetes, reduced fertility). This course will examine experiments regarding Environmental Endocrine Disruptors and consider how this work is important in the development of regulatory policy.

**Credits:** 3

**Room and Schedule:** Higgins Hall 225 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** At least two of the following courses: BIOL3040, BIOL5060, BIOL4170, BIOL4510, BIOL4140, BIOL4350, BIOL4400.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Both

**Comments:** None

**Status:** Offered

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**BIOL520001**

**Glycobiology and Human Disease**

**Wiederschain, Gherman Y**

**Fall 2024**

Satisfies the advanced experience requirement for the Biology major. In this seminar course we will discuss the structures, function, and metabolism (biosynthesis and degradation) of carbohydrate-containing molecules, which are widely distributed in nature. Glycosylation is a major type of posttranslational modification of proteins and lipids, and as a result of such modification these molecules (glycoconjugates) obtained new physical, chemical and biological properties that frequently determine very specific processes in the cells and whole living organisms. Glycoconjugates have important roles in intercellular interactions and adhesion, signaling, the immune response, fertilization, embryogenesis, the action of hormones and receptors, etc. Disorders (often hereditary) in degradation and biosynthesis of glycoconjugates lead to development of very severe diseases, a variety of lysosomal storage diseases (LSD) and congenital disorders of glycosylation (CDG), respectively. For the past two decades, new fields of study termed glycomedicine and glycopharmacology have been developing rapidly.

**Credits:** 2

**Room and Schedule:** Higgins Hall 260 MW 09:00AM-09:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000 Molecules and Cells, BIOL2040 Investigations in Molecular Cell Biology, and additional coursework in cell Biology or biochemistry.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Both

**Comments:** None

**Status:** Offered

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**BIOL539001**

**Molecular Basis of Disease**

**Dunn, Rebecca K**

**Fall 2024**

This course fulfills the Advanced Experience requirement of the biology major. In this course, we will use the primary scientific literature to explore the molecular basis of a selected group of diseases and disorders that represent a broad spectrum of humanmaladies. Each will serve as a case study to illustrate the consequences of errors in gene expression, protein folding and post-translational modification, stem cell function and cell specification, signaling, and/or immune activation. Students will gain (1) an understanding how basic biological phenomena underpin human disease and (2) experience in the analysis of scientific research articles. In parallel with class meetings, students will independently investigate the molecular basis of a disease of their choice.

**Credits:** 2

**Room and Schedule:** Higgins Hall 416;MW 12:00 Noon-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** Molecules and Cells, Genetic or Introduction to Genomics, and additional coursework in physiology, cell biology, molecular biology, or biochemistry.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL542001**

**Cancer As A Metabolic Disease**

**Seyfried, Thomas N, Phd**

**Fall 2024**

Satisfies the advanced experience requirement for the Biology major. This seminar will review evidence showing that impaired cellular energy metabolism is the defining characteristic of nearly all cancers regardless of cellular or tissue origin. In contrast to normal cells, which derive most of their usable energy from oxidative phosphorylation, nearly all cancer cells become dependent on non-oxidative substrate level phosphorylations to meet energy demands. Evidence will be discussed supporting a general hypothesis that all hallmarks of cancer including genomic instability and metastasis can be linked to impaired mitochondrial function. A view of cancer as a metabolic disease will impact approaches to cancer management and prevention.

**Credits:** 3

**Room and Schedule:** Higgins Hall 465 TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040 and BIOL3040

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL545001**

### **Advanced Lab in Cell Imaging**

**Judson, Bret**

**Fall 2024**

This course satisfies the advanced experience requirement for biology majors. This course will survey the various visualization techniques and instruments used by scientists and biomedical researchers: light microscopy, confocal, electron microscopy, super-resolution, and image processing. Students will discuss the experimental use of these techniques and instruments as described in the primary literature. The laboratory component will focus on becoming familiar with the instrumentation that we have available at Boston College. The course will culminate in individual projects of the students choosing utilizing equipment that we have in the laboratory.

**Credits:** 2

**Room and Schedule:** Higgins 465;TuTh 04:00PM-06:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040 and additional coursework in cell and/or molecular biology.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL570001**

### **Biology of the Nucleus**

**Annunziato, Anthony T, Phd**

**Fall 2024**

Satisfies the advanced experience requirement for the Biology major. This course provides an in-depth treatment of the molecular biology of DNA and RNA, with particular emphasis on the control and organization of the genetic material of eukaryotic organisms. Topics include chromatin structure and function, histone modifications, DNA replication, gene activation and silencing, DNA methylation, and RNA interference. Emphasis is on experimental design, and analysis of the primary literature.

**Credits:** 3

**Room and Schedule:** Higgins Hall 465 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CHEM4461 or CHEM4461 or BIOL4350 or BIOL4400

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL641001**

### **GRAD Contemporary Biological Questions and Critical Analysis**

**Meyer, Michelle M**

**Fall 2024**

Learn how to read and evaluate scientific literature across areas in contemporary biology. Identify key assumptions and data critical to significance of the work. Articulate both strengths and weaknesses of a published work.

**Credits:** 2

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Instructor

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** null

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL643001****Experimental Methods and Design in Biology****Losick-Yang, Vicki P; Meyer, Michelle M****Fall 2024**

Emphasis is on understanding experimental methods and how they may be utilized to address biological questions. Acquire familiarity with a wide range of experimental approaches/systems. Articulate strengths and weaknesses of individual experimental methods. Devise appropriate control experiments. Identify complementary experimental approaches. Gain functional understanding of major technologies used throughout the department. Basic training for all departmental core facilities. Provide a venue for practice and consistent feedback in written and oral communication.

**Credits:** 2**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall**Student Level:** Graduate**Comments:** None**Status:** Offered

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**BIOL701001****Graduate Research Experience I****Das, Maitreyi****Fall 2024**

This seven-week research experience is designed to provide first year students with both technical and intellectual preparation to work in a faculty member's laboratory. Projects are assigned by the faculty advisor. To help develop communication skills, at the end of the seven week period, students give a 10-12 minute talk to the department describing their research.

**Credits:** 1**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** None**Corequisites:** None**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL701101**

**Graduate Research Experience II**

**Das, Maitreyi**

**Fall 2024**

This seven-week research experience is designed to provide first year students with both technical and intellectual preparation to work in a faculty member's laboratory. Projects are assigned by the faculty advisor. To help develop communication skills, at the end of the seven week period, students give a 10-12 minute talk to the department describing their research.

**Credits:** 1

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL801001**

**Thesis Seminar**

**Hoffman, Charles**

**Fall 2024**

A research problem of an original nature will be addressed. This course is designed for M.S. candidates under the direction of a faculty member. A maximum of six credits may be earned from this course.

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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## **BIOL805001**

### **Departmental Seminar**

**Hoffman, Charles**

**Fall 2024**

This is a series of research seminars conducted by leading scientists, both from within the department and from other institutions, that are presented on a regular (usually weekly) basis.

**Credits:** 1

**Room and Schedule:** Higgins Hall 310 TuTh 03:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

---

## **BIOL813001**

### **Readings in Microbial Evolution**

**Hilbert, Zoe A**

**Fall 2024**



Microbes are masterful shape-shifters capable of rapid adaptation to wide-ranging environmental conditions through many distinct mechanisms. In this course, we will explore primary literature focused on the evolution of and adaptive strategies employed by diverse microbes, including viruses, bacteria, fungi and parasites, with a particular emphasis on evolution of pathogenic species. Primary goals of the course are to gain a familiarity with the wide-ranging literature on microbial evolution, an ability to think critically about this literature, and to demonstrate understanding through a variety of written and oral assessments and in class participation.

**Credits:** 2

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL990101**

**Doctoral Comprehensive**

**Meyer, Michelle M**

**Fall 2024**

Required for Doctoral students who have completed all course requirements, but are preparing for comprehensive examinations.

**Credits:** 1

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL991101****Doctoral Continuation****Das, Maitreyi****Fall 2024**

All students who have been admitted to candidacy for the Ph.D. degree are required to register and to pay the fee for doctoral continuation during each semester of their candidacy. Doctoral Continuation requires a commitment of at least 20 hours per week working on the dissertation.

**Credits:** 1**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall, Every Spring**Student Level:** Graduate**Comments:** None**Status:** Offered

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## Biology Courses: Spring 2025

**BIOL132001****Anatomy and Physiology 2****Mott, Devin****Spring 2025**

This course is a continuation of BIOL 1300/1310, with a primary emphasis on the physiology of the major body systems. Systems studied in this course include the sensory, endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive systems. While the physiological functions under normal conditions are emphasized, relevant disease or dysfunctional conditions are also discussed.

**Credits:** 3**Room and Schedule:** Fulton Hall 511 (Auditorium) TuTh 07:30AM-08:45AM**Satisfies Core Requirement:** None**Prerequisites:** None**Corequisites:** BIOL1330**Cross-listed with:** None**Frequency:** Every Spring, Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL133001**

**Anatomy and Physiology Lab 2**

**Dept, Dept**

**Spring 2025**

A continuation of Anatomy & Physiology Lab 1.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 M 09:00AM-10:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** BIOL1320

**Cross-listed with:** None

**Frequency:** Every Spring,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL133002**

**Anatomy and Physiology Lab 2**

**Dept, Dept**

**Spring 2025**

A continuation of Anatomy & Physiology Lab 1.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 M 11:00AM-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** BIOL1320

**Cross-listed with:** None

**Frequency:** Every Spring,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL133003****Anatomy and Physiology Lab 2****Dept, Dept****Spring 2025**

A continuation of Anatomy & Physiology Lab 1.

**Credits:** 1**Room and Schedule:** Higgins Hall 390 M 02:00PM-03:50PM**Satisfies Core Requirement:** None**Prerequisites:** None**Corequisites:** BIOL1320**Cross-listed with:** None**Frequency:** Every Spring,Every Summer**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL133004****Anatomy and Physiology Lab 2****Dept, Dept****Spring 2025**

A continuation of Anatomy & Physiology Lab 1.

**Credits:** 1**Room and Schedule:** Higgins Hall 390 M 04:00PM-05:50PM**Satisfies Core Requirement:** None**Prerequisites:** None**Corequisites:** BIOL1320**Cross-listed with:** None**Frequency:** Every Spring,Every Summer**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL133005****Anatomy and Physiology Lab 2****Dept, Dept**

**Spring 2025**

A continuation of Anatomy & Physiology Lab 1.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 W 09:00AM-10:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** BIOL1320

**Cross-listed with:** None

**Frequency:** Every Spring,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL133006****Anatomy and Physiology Lab 2**

**Dept, Dept**

**Spring 2025**

A continuation of Anatomy & Physiology Lab 1.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 W 11:00AM-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** BIOL1320

**Cross-listed with:** None

**Frequency:** Every Spring,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL133007****Anatomy and Physiology Lab 2**

**Dept, Dept**

**Spring 2025**

A continuation of Anatomy & Physiology Lab 1.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 W 02:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** BIOL1320

**Cross-listed with:** None

**Frequency:** Every Spring,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL133008**

**Anatomy and Physiology Lab 2**

**Dept, Dept**

**Spring 2025**

A continuation of Anatomy & Physiology Lab 1.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 W 04:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** BIOL1320

**Cross-listed with:** None

**Frequency:** Every Spring,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL144001**

**Sustaining the Biosphere**

**Hake, Laura E**

**Spring 2025**

Environmental problems and their solutions occur at the intersection of natural systems and the human systems that manipulate the natural world. The course will provide students with an integrated understanding of human systems that affect nature. Topics will include climate, air and water pollution, economics and urbanization, food and agriculture, population growth, biodiversity, waste management and health and toxicology. Sustainability, personal responsibility and a proactive approach to involvement in solutions to current environmental crises will be emphasized. This course is designed for students who are not majoring in biology or biochemistry.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 MW 01:00PM-01:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL144002**

### **Sustaining the Biosphere**

**Hake, Laura E**

**Spring 2025**

Environmental problems and their solutions occur at the intersection of natural systems and the human systems that manipulate the natural world. The course will provide students with an integrated understanding of human systems that affect nature. Topics will include climate, air and water pollution, economics and urbanization, food and agriculture, population growth, biodiversity, waste management and health and toxicology. Sustainability, personal responsibility and a proactive approach to involvement in solutions to current environmental crises will be emphasized. This course is designed for students who are not majoring in biology or biochemistry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 260 F 01:00PM-01:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **BIOL144003**

#### **Sustaining the Biosphere**

**Hake, Laura E**

**Spring 2025**

Environmental problems and their solutions occur at the intersection of natural systems and the human systems that manipulate the natural world. The course will provide students with an integrated understanding of human systems that affect nature. Topics will include climate, air and water pollution, economics and urbanization, food and agriculture, population growth, biodiversity, waste management and health and toxicology. Sustainability, personal responsibility and a proactive approach to involvement in solutions to current environmental crises will be emphasized. This course is designed for students who are not majoring in biology or biochemistry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 265 F 01:00PM-01:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **BIOL144004**

#### **Sustaining the Biosphere**

**Hake, Laura E**

**Spring 2025**



Environmental problems and their solutions occur at the intersection of natural systems and the human systems that manipulate the natural world. The course will provide students with an integrated understanding of human systems that affect nature. Topics will include climate, air and water pollution, economics and urbanization, food and agriculture, population growth, biodiversity, waste management and health and toxicology. Sustainability, personal responsibility and a proactive approach to involvement in solutions to current environmental crises will be emphasized. This course is designed for students who are not majoring in biology or biochemistry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 275 F 01:00PM-01:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL144005**

### **Sustaining the Biosphere**

**Hake, Laura E**

**Spring 2025**

Environmental problems and their solutions occur at the intersection of natural systems and the human systems that manipulate the natural world. The course will provide students with an integrated understanding of human systems that affect nature. Topics will include climate, air and water pollution, economics and urbanization, food and agriculture, population growth, biodiversity, waste management and health and toxicology. Sustainability, personal responsibility and a proactive approach to involvement in solutions to current environmental crises will be emphasized. This course is designed for students who are not majoring in biology or biochemistry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 280 F 01:00PM-01:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL144006**

**Sustaining the Biosphere**

**Hake, Laura E**

**Spring 2025**

Environmental problems and their solutions occur at the intersection of natural systems and the human systems that manipulate the natural world. The course will provide students with an integrated understanding of human systems that affect nature. Topics will include climate, air and water pollution, economics and urbanization, food and agriculture, population growth, biodiversity, waste management and health and toxicology. Sustainability, personal responsibility and a proactive approach to involvement in solutions to current environmental crises will be emphasized. This course is designed for students who are not majoring in biology or biochemistry.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 214 F 01:00PM-01:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL144007**

**Sustaining the Biosphere**

**Hake, Laura E**

**Spring 2025**

Environmental problems and their solutions occur at the intersection of natural systems and the human systems that manipulate the natural world. The course will provide students with an integrated understanding of human systems that affect nature. Topics will include climate, air and water pollution, economics and urbanization, food and agriculture, population growth, biodiversity, waste management and health and toxicology. Sustainability, personal responsibility and a proactive approach to involvement in solutions to current environmental crises will be emphasized. This course is designed for students who are not majoring in biology or biochemistry.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 215 F 01:00PM-01:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL200001**

### **Molecules and Cells**

**Dunn, Rebecca K**

**Spring 2025**

Foundational course required for Biology majors that introduces students to living systems at the molecular and cellular level of organization. Topics introduced in this course include basic cellular biochemistry, gene regulation, cellular organization and metabolism, and cell signaling and genetics.

**Credits:** 3

**Room and Schedule:** Higgins Hall 300 MWF 12:00 Noon-12:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** CHEM1109 may be taken concurrently or equivalent or permission of the department.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL200002**

**Molecules and Cells**

**Das, Maitreyi**

**Spring 2025**

Foundational course required for Biology majors that introduces students to living systems at the molecular and cellular level of organization. Topics introduced in this course include basic cellular biochemistry, gene regulation, cellular organization and metabolism, and cell signaling and genetics.

**Credits:** 3

**Room and Schedule:** Fulton Hall 511 (Auditorium) TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** CHEM1109 may be taken concurrently or equivalent or permission of the department.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL201001**

**Ecology and Evolution**

**DaCosta, Jeffrey M**

**Spring 2025**

Foundational course required for Biology majors with a focus on the ecology and resilience of living systems across all levels of spatial scales. Topics introduced in this course include evolution, population dynamics, behavioral ecology, ecosystems, co-evolution, and human ecology.

**Credits:** 3

**Room and Schedule:** Devlin Hall 8 MWF 02:00PM-02:50PM

**Satisfies Core Requirement:** Natural Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204001**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 3

**Room and Schedule:** Higgins Hall 263 MW 12:00 Noon-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204002**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 375 MW 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204003**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 380 MW 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204004**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 370 MW 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204005**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 3

**Room and Schedule:** Higgins Hall 263 TuTh 12:00 Noon-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204006**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 375 TuTh 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring



**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204007**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 380 TuTh 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204008**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 370 TuTh 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204009**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 3

**Room and Schedule:** Higgins Hall 263 MW 04:30PM-05:20PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204010**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 375 MW 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204011**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 380 MW 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204012**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 370 MW 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204013**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 3

**Room and Schedule:** Higgins Hall 263 TuTh 04:30PM-05:20PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204014**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 375 TuTh 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL204015**

### **Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 380 TuTh 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL204016**

**Investigations in Molecular Cell Biology Lab**

**Warner, Douglas M**

**Spring 2025**

A 3-credit laboratory course designed to introduce students to the core techniques and experimental strategies of modern molecular cell biology within the context of an original research investigation. Students will learn to construct testable hypotheses, design experiments, and critically analyze experimental results. During the course of their investigations, students will gain proficiency in microbial cell culture, molecular cloning, genetic analysis, and molecular characterization. Students will also gain proficiency in scientific communication and the use of biological databases.

**Credits:** 0

**Room and Schedule:** Higgins Hall 370 TuTh 05:30PM-07:30PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL206001**

**Gateway Biology Discussion II**

**Dunn, Rebecca K**

**Spring 2025**

This one-credit discussion course supports Gateway students enrolled in BIOL2000 through guided review and problem-solving activities that coincide closely with lecture material for each week. Attendance and active participation are required, as is concurrent enrollment in BIOL2000.

**Credits:** 1

**Room and Schedule:** Higgins Hall 260 Tu 04:30PM-05:20PM

**Satisfies Core Requirement:** None

**Prerequisites:** This discussion is restricted to students in the Gateway Scholars Program.

**Corequisites:** BIOL2000 or Students must be concurrently enrolled in the BIOL2000 lecture supported by the Gateway Scholars Program.

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL206002**

### **Gateway Biology Discussion II**

**Dunn, Rebecca K**

**Spring 2025**

This one-credit discussion course supports Gateway students enrolled in BIOL2000 through guided review and problem-solving activities that coincide closely with lecture material for each week. Attendance and active participation are required, as is concurrent enrollment in BIOL2000.

**Credits:** 1

**Room and Schedule:** Higgins Hall 260 Tu 05:30PM-06:20PM

**Satisfies Core Requirement:** None

**Prerequisites:** This discussion is restricted to students in the Gateway Scholars Program.

**Corequisites:** BIOL2000 or Students must be concurrently enrolled in the BIOL2000 lecture supported by the Gateway Scholars Program.

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL221001****Microbiology for Health Professionals Laboratory****Dept, Dept****Spring 2025**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1**Room and Schedule:** Higgins Hall 380 F 11:00AM-12:50PM**Satisfies Core Requirement:** None**Prerequisites:** None**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Summer**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL221002****Microbiology for Health Professionals Laboratory****Dept, Dept****Spring 2025**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1**Room and Schedule:** Higgins Hall 390 F 11:00AM-12:50PM**Satisfies Core Requirement:** None**Prerequisites:** None**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Summer**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL221003**

**Microbiology for Health Professionals Laboratory**

**Dept, Dept**

**Spring 2025**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 380 F 02:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL221004**

**Microbiology for Health Professionals Laboratory**

**Dept, Dept**

**Spring 2025**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 F 02:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL221005**

### **Microbiology for Health Professionals Laboratory**

**Dept, Dept**

**Spring 2025**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 375 F 11:00AM-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL221006**

### **Microbiology for Health Professionals Laboratory**

**Dept, Dept**

**Spring 2025**

One two-hour laboratory period per week. Exercises in this laboratory course deal with aseptic techniques, microbial cultivation and growth characteristics, staining and bacterial isolation techniques, differential biochemical tests, identification of unknown bacterial species, and testing effectiveness of antimicrobial agents.

**Credits:** 1

**Room and Schedule:** Higgins Hall 375 F 02:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL303001**

### **Comparative Vertebrate Physiology**

**Kenaley, Christopher P**

**Spring 2025**

This course is intended for Biology, Psychology, and Biochemistry majors and students in the pre-medical program seeking a broad overview of human physiology. This course will offer a comprehensive exploration of fundamental life systems with a primary emphasis on human physiology. The chemical and physical processes common to all living organisms, including hemodynamics, respiration, circulation, acid/base regulation, synaptic transmission, kidney and muscle function will be discussed. Also included are related topics on development of the organism and functional aspects of the immune system in host defense strategies.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL304001**

### **Cell Biology**

**Folker, Eric S**

**Spring 2025**

This course is designed to provide students with a strong foundation in the molecular biology of the cell. Topics covered in the course include cellular biochemistry, regulation of gene expression, subcellular organization, regulation of the cell cycle, membrane trafficking, cell-substrate interactions, cytoskeleton, cancer, and cell signaling. It serves as excellent preparation for more advanced courses in cell biology, molecular biology, developmental biology, and genetics.

**Credits:** 3

**Room and Schedule:** Higgins Hall 300 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL309001**

### **Foundations of Microbiology**

**Warner, Douglas M**

**Spring 2025**

In this course we examine the diversity in the microbial world that exists between bacteria, archaea, eukarya, and viruses. We will explore the unique molecular biology, metabolism, and ecological diversity that exists within the three domains of life and, ultimately, discuss how various aspects and members of the microbial world intersect with humanity and human health.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 107 TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL315001****Introduction to Genomics****Nystuen, Arne M****Spring 2025**

Biology of genomes: functions of genes and their products on a global scale using high throughput approaches, genome organization, transcriptomes and proteomes, genomics and diseases.

**Credits:** 3**Room and Schedule:** Higgins Hall 300 TuTh 09:00AM-10:15AM**Satisfies Core Requirement:** None**Prerequisites:** BIOL2000; BIOL2040 recommended.**Corequisites:** None**Cross-listed with:** None**Frequency:** Annually**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL320001****Ecology in a Changing Climate****Olins, Heather C****Spring 2025**

In the midst of widespread global climate change, Earth's biodiversity faces multiple synergistic threats. Climate change, habitat loss, pollution, over extraction, and invasive species threaten all species on Earth including our own. The tools of Ecology can help to understand these threats. Advances in science and modeling enable us to make predictions about future climate and ecosystem conditions, but these predictions have their limitations. Focusing solely on climate models and predictions of future scenarios and biodiversity loss can lead to feelings of hopelessness and desperation. To work towards an equitable, sustainable future for all species on Earth (including *Homo sapiens*) we need to learn about positive visions for the future, we need to be able to critically assess potential solutions, we need to examine examples of effective solutions, and we need to consider the roles we each can play in bringing about a positive future. In this course we will do these things together. Over the course of the semester, each student will integrate technical scientific literature, a diverse set of views and perspectives on how we interact with the natural world around us, and personal reflection to create an individual plan of action.

**Credits:** 3

**Room and Schedule:** Higgins Hall 275 MWF 09:00AM-09:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2010

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL331001**

### **Human Physiology Laboratory**

**DiBenedetto, Lynn M**

**Spring 2025**

The human physiology lab is designed to encourage independent inquiry. Working in groups, students will use a software system (iWORX) that allows the collection of data recordings of physiological processes in real time. Students will analyze various types of data, including myographs (EMGs), ECGs, and spirometry. An independent research project is also a mandatory component of the lab. Students will present their data and experimental design to the class.

**Credits:** 1

**Room and Schedule:** Higgins Hall 390 Tu 06:00PM-07:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL332001**

### **Developmental Biology**

**Gonzalez Rosa, Juan Manuel**

**Spring 2025**

Developmental Biology is the discipline that studies the processes by which a single cell, the fertilized egg, divides, differentiates, and progressively gives rise to a complex organism formed by billions of cells with highly specialized functions. This process fascinated Aristotle over 2,300 years ago and continues to be the source of some of the most challenging questions in Biology. Given that their DNA is identical, how do your muscle cells and neurons acquire their complex phenotypes? What signals are integrated so that a small cluster of relatively homogeneous cells gives rise to a limb? How are identity and positional memory encoded, and what mechanisms are activated to regenerate the original shape after injury? This course will cover essential concepts in genetics, cell signaling, and comparative embryology, which are foundational to the study of development. We will also focus on understanding critical experimental approaches and the relevance of model organisms for studying the embryo.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 MWF 03:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040 and additional coursework in molecular cell biology (such as BIOL3040, BIOL4140, BIOL4400)

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL403001****Deep Sea Biology****Olins, Heather C****Spring 2025**

Roughly 80% of habitable space on this planet is in the ocean below 1000 meters where sunlight never reaches. In this course we will dive into this rarely visited habitat that occupies the majority of our biosphere. We will take an interdisciplinary approach, as studying the deep requires the integration of geology, chemistry, ecology, physiology, and engineering. We will investigate fundamental aspects of biology such as how organisms adapt to challenges posed by their environment. Students will also gain an appreciation for how much of the planet remains unexplored and learn how scientists study the inaccessible ecosystems of the deep.

**Credits:** 3**Room and Schedule:** Higgins Hall 263 MW 03:00PM-04:15PM**Satisfies Core Requirement:** None**Prerequisites:** BIOL2010**Corequisites:** None**Cross-listed with:** None**Frequency:** Annually**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**BIOL425001****Population Genetics****Clote, Peter G****Spring 2025**

In molecular evolution, random events such as pointwise DNA mutations and chromosomal rearrangement events (inversion, reciprocal translocation) create genetic variation in a diploid population that undergoes selection of the fittest to survive. This course describes mathematical models, both deterministic and stochastic, that provide a theoretical foundation for understanding modern genetics. The types of questions we'll address include the following. In a large population, how do haplogroup frequencies change both in the presence and absence of selection and restricted migration? What is linkage disequilibrium and how is it measured? In situations of a population bottleneck, caused for instance by limited environmental resources, what is the probability that a particular allele will become fixed in the population, and what is the expected time until fixation? What is the coalescent? In addition, some original research papers will be presented.

**Credits:** 3

**Room and Schedule:** Higgins Hall 225 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL 3050 OR 3150. Working knowledge of probability and statistics or approval from the instructor.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL433001**

**Human Physiology with Lab**

**DiBenedetto, Lynn M**

**Spring 2025**

This course will examine the normal functions of a living human organism including its physical and chemical processes. An integrative approach will be used to explore the physiological processes of the nervous, respiratory, cardiovascular, renal, gastrointestinal and endocrine systems and the relationships between them. In the computer based laboratory, which is a corequisite, students will investigate the functions of intact, living human organisms through real-time, hands-on data acquisition and analysis of the neuromuscular, cardiovascular and respiratory systems using clinical measurements including EMG, EEG, cardiac electrophysiology and spirometry.

**Credits:** 4

**Room and Schedule:** Higgins Hall 300 MW 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** Junior standing with previous course work in molecular/cell biology or physiology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL433002**

### **Human Physiology with Lab**

**DiBenedetto, Lynn M**

**Spring 2025**

This course will examine the normal functions of a living human organism including its physical and chemical processes. An integrative approach will be used to explore the physiological processes of the nervous, respiratory, cardiovascular, renal, gastrointestinal and endocrine systems and the relationships between them. In the computer based laboratory, which is a corequisite, students will investigate the functions of intact, living human organisms through real-time, hands-on data acquisition and analysis of the neuromuscular, cardiovascular and respiratory systems using clinical measurements including EMG, EEG, cardiac electrophysiology and spirometry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Tu 11:00AM-01:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** Junior standing with previous course work in molecular/cell biology or physiology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL433003**

**Human Physiology with Lab**

**DiBenedetto, Lynn M**

**Spring 2025**

This course will examine the normal functions of a living human organism including its physical and chemical processes. An integrative approach will be used to explore the physiological processes of the nervous, respiratory, cardiovascular, renal, gastrointestinal and endocrine systems and the relationships between them. In the computer based laboratory, which is a corequisite, students will investigate the functions of intact, living human organisms through real-time, hands-on data acquisition and analysis of the neuromuscular, cardiovascular and respiratory systems using clinical measurements including EMG, EEG, cardiac electrophysiology and spirometry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Tu 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** Junior standing with previous course work in molecular/cell biology or physiology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL433004**

**Human Physiology with Lab**

**DiBenedetto, Lynn M**

**Spring 2025**

This course will examine the normal functions of a living human organism including its physical and chemical processes. An integrative approach will be used to explore the physiological processes of the nervous, respiratory, cardiovascular, renal, gastrointestinal and endocrine systems and the relationships between them. In the computer based laboratory, which is a corequisite, students will investigate the functions of intact, living human organisms through real-time, hands-on data acquisition and analysis of the neuromuscular, cardiovascular and respiratory systems using clinical measurements including EMG, EEG, cardiac electrophysiology and spirometry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Tu 04:00PM-06:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** Junior standing with previous course work in molecular/cell biology or physiology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL433005**

### **Human Physiology with Lab**

**DiBenedetto, Lynn M**

**Spring 2025**

This course will examine the normal functions of a living human organism including its physical and chemical processes. An integrative approach will be used to explore the physiological processes of the nervous, respiratory, cardiovascular, renal, gastrointestinal and endocrine systems and the relationships between them. In the computer based laboratory, which is a corequisite, students will investigate the functions of intact, living human organisms through real-time, hands-on data acquisition and analysis of the neuromuscular, cardiovascular and respiratory systems using clinical measurements including EMG, EEG, cardiac electrophysiology and spirometry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Th 11:00AM-01:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** Junior standing with previous course work in molecular/cell biology or physiology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL433006**

**Human Physiology with Lab**

**Redfern, Eleanor R**

**Spring 2025**

This course will examine the normal functions of a living human organism including its physical and chemical processes. An integrative approach will be used to explore the physiological processes of the nervous, respiratory, cardiovascular, renal, gastrointestinal and endocrine systems and the relationships between them. In the computer based laboratory, which is a corequisite, students will investigate the functions of intact, living human organisms through real-time, hands-on data acquisition and analysis of the neuromuscular, cardiovascular and respiratory systems using clinical measurements including EMG, EEG, cardiac electrophysiology and spirometry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Th 01:00PM-03:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** Junior standing with previous course work in molecular/cell biology or physiology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL433007**

**Human Physiology with Lab**

**DiBenedetto, Lynn M**

**Spring 2025**

This course will examine the normal functions of a living human organism including its physical and chemical processes. An integrative approach will be used to explore the physiological processes of the nervous, respiratory, cardiovascular, renal, gastrointestinal and endocrine systems and the relationships between them. In the computer based laboratory, which is a corequisite, students will investigate the functions of intact, living human organisms through real-time, hands-on data acquisition and analysis of the neuromuscular, cardiovascular and respiratory systems using clinical measurements including EMG, EEG, cardiac electrophysiology and spirometry.

**Credits:** 0

**Room and Schedule:** Higgins Hall 390 Th 04:00PM-06:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** Junior standing with previous course work in molecular/cell biology or physiology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL435001**

### **Biological Chemistry**

**Dunn, Rebecca K;Meyer, Michelle M**

**Spring 2025**

This course is designed to introduce biology and biochemistry majors to the subject with an emphasis on understanding the biochemical principals that are crucial to biological function at the molecular, cellular, and organismal levels. The material includes: (1) the structure and chemistry of biomolecules, including amino acids, proteins, lipids, carbohydrates, and nucleic acids; (2) the key metabolic pathways and enzymology involved in the synthesis/degradation of carbohydrates; and (3) the cycling of energy through biological systems. Reference will be made to alterations in biochemical structures, processes, and pathways that relate to specific diseases.

**Credits:** 3

**Room and Schedule:** Mcguinn Hall 121 MWF 10:00AM-10:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** CHEM2231 and BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL440001**

**Molecular Biology**

**Annunziato, Anthony T, Phd**

**Spring 2025**

This course will explore the structure, function, synthesis and interaction of nucleic acids and proteins. The mechanisms involved in maintaining cellular genetic and epigenetic information, and in reading this "code" to generate specific patterns of gene expression, will be studied in detail. Topics include classic and newly-developed techniques for studying macromolecules; biotechnology; the functional organization of chromosomes; protein folding and modifications; DNA replication, repair and supercoiling; RNA synthesis and processing; translation and the levels of gene regulation. Literature from the foundational investigations that led to our understanding of these processes and the current research in these areas will be presented.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 MWF 12:00 Noon-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL445001**

**Behavioral Ecology**

**DaCosta, Jeffrey M**

**Spring 2025**



This course will examine the adaptive significance of behavior in an ecological context. Lectures and readings from the primary literature will review basic concepts and theory as well as model-based and experimental approaches to exploring questions in the field. Topics covered includes social behavior, reproductive behavior, life history strategies, optimal foraging, territoriality, co-evolution, and communication.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 MWF 10:00AM-10:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL 2010 and BIOL 3050 or BIOL3150

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL451001**

### **Cancer Biology**

**Taghian, Danielle**

**Spring 2025**

The onset of cancer occurs through a multi-step process that is accompanied by the deregulation of fundamental cellular processes, including cell cycle control, apoptosis and angiogenesis. This course will provide an overview of the molecular and cellular changes associated with these processes and with the initiation, progression and metastasis of tumors. Topics covered will include tumorigenesis, tumor viruses, oncogenes, tumor suppressor genes, genomic instability and the current treatments for cancer. The class will draw on textbook and primary literature readings to enrich the current view of this complex disease.

**Credits:** 3

**Room and Schedule:** Higgins Hall 300 MWF 11:00AM-11:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040 and additional coursework in molecular cell biology (such as BIOL3040, BIOL4140, or BIOL4400)

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL457001**

**Principles of Immunology**

**Fofana, Ismael B**

**Spring 2025**

An introductory survey of the immune system, this course will examine the development and deployment of immunity from a molecular and cellular perspective. Topics will include innate versus adaptive immunity, B and T cell activation, antibodies and antigens, and immunological memory. Modern experimental techniques and the immune system's roles in infectious disease, cancer and autoimmune disease will also be discussed.

**Credits:** 3

**Room and Schedule:** Higgins Hall 310 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040 and additional coursework in molecular cell biology (such as BIOL3040, BIOL4140, BIOL4400)

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL483001**

**Research in Molecular Biology Lab**

**Fofana, Ismael B**

**Spring 2025**

Satisfies the advanced experience requirement for the Biology major. An advanced project laboratory course for hands-on training in the experimental techniques of molecular biology under faculty supervision. In addition to formal lab training and discussions, students will have access to the lab outside class hours to work on projects intended to produce publication quality data. The research project will focus on environmentally-mediated gene expression in the organism *Pseudomonas fluorescens*. Methods taught include: DNA cloning techniques, DNA sequencing, polymerase chain reaction, and the use national databases for research and analysis. It is ideal for students who desire a solid introduction to hypothesis-driven research in molecular biology through practical training.

**Credits:** 3

**Room and Schedule:** Higgins Hall 570 TuTh 02:00PM-05:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL492101**

### **Advanced Independent Research**

**Gubbels, Johannes M**

**Spring 2025**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL492102**

**Advanced Independent Research**

**Hoffman, Charles**

**Spring 2025**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL492103**

**Advanced Independent Research**

**Johnson, Welkin E**

**Spring 2025**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL492104**

**Advanced Independent Research**

**Folker, Eric S**

**Spring 2025**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL492105**

**Advanced Independent Research**

**Dept, Dept**

**Spring 2025**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL492106**

**Advanced Independent Research**

**Dept, Dept**

**Spring 2025**

See the College of Arts and Sciences section of this Catalog for a description of the Scholar of the College program. This course can count as a maximum of one upper-division elective if no other elective credit has been claimed for other research courses.

**Credits:** 6

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496001**

**Undergraduate Research**

**Altindis, Emrah**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496002**

**Undergraduate Research**

**DaCosta, Jeffrey M**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496003**

**Undergraduate Research**

**Fofana, Ismael B**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496004**

**Undergraduate Research**

**Folker, Eric S**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496005**

**Undergraduate Research**

**Gubbels, Johannes M**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496006**

**Undergraduate Research**

**Hoffman, Charles**



**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496007**

**Undergraduate Research**

**Johnson, Welkin E**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496008**

**Undergraduate Research**

**Kenaley, Christopher P**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496010**

**Undergraduate Research**

**Losick-Yang, Vicki P**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496011**

**Undergraduate Research**

**McMenamin, Sarah K**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None  
**Prerequisites:** Permission of Department  
**Corequisites:** None  
**Cross-listed with:** None  
**Frequency:** Every Fall,Every Spring  
**Student Level:** Undergraduate  
**Comments:** None  
**Status:** Offered

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**BIOL496012**  
**Undergraduate Research**  
**Meyer, Michelle M**  
**Spring 2025**  
TBD

**Credits:** 3  
**Room and Schedule:** By Arrangement  
**Satisfies Core Requirement:** None  
**Prerequisites:** Permission of Department  
**Corequisites:** None  
**Cross-listed with:** None  
**Frequency:** Every Fall,Every Spring  
**Student Level:** Undergraduate  
**Comments:** None  
**Status:** Offered

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**BIOL496013**  
**Undergraduate Research**  
**Momeni, Babak**  
**Spring 2025**  
TBD

**Credits:** 3  
**Room and Schedule:** By Arrangement  
**Satisfies Core Requirement:** None  
**Prerequisites:** Permission of Department  
**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496014**

**Undergraduate Research**

**Gonzalez Rosa, Juan Manuel**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496015**

**Undergraduate Research**

**Das, Maitreyi**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496016**

**Undergraduate Research**

**Williams, Kenneth C**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496017**

**Undergraduate Research**

**Judson, Bret**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496021**

**Undergraduate Research**

**Whitney, James**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496201**

**Senior Thesis Research**

**Williams, Kenneth C**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496202**

**Senior Thesis Research**

**McMenamin, Sarah K**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496203**

**Senior Thesis Research**

**Hoffman, Charles**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496204**

**Senior Thesis Research**

**Meyer, Michelle M**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496205**

**Senior Thesis Research**

**Dept, Dept**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496206**

**Senior Thesis Research**

**Dept, Dept**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement



**Satisfies Core Requirement:** None  
**Prerequisites:** Permission of Department  
**Corequisites:** None  
**Cross-listed with:** None  
**Frequency:** Every Fall,Every Spring  
**Student Level:** Undergraduate  
**Comments:** None  
**Status:** Offered

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**BIOL496207**

**Senior Thesis Research**

**Dept, Dept**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**BIOL496301**

**Undergraduate Research Investigations**

**Fofana, Ismael B**

**Spring 2025**

TBD

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **BIOL501001**

#### **Nobel Prize Winning Research in Medicine or Physiology**

**Burgess, David R**

**Spring 2025**

Satisfies the advanced experience requirement for the Biology major. In this course we will discuss primary research literature in the fields of cell and developmental biology that have led to the award of the Nobel Prize. Each student will select a primary paper cited by the Nobel Foundation as justification for the award together with a supportive current review on the topic and present the background information to the class. The primary paper will be discussed at the following class period, with all students having defined responsibilities for discussion of the figures and data.

**Credits:** 2

**Room and Schedule:** Stokes Hall 105S M 03:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL3040 or related course work in molecular cell biology

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Both

**Comments:** None

**Status:** Offered

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### **BIOL507101**

#### **Microbial Community Ecology**

**Momeni, Babak**

**Spring 2025**

Satisfies the advanced experience requirement for the Biology major. Polymicrobial communities can cause harmful infections as pathogens or facilitate food digestion as resident microbiota. They also have industrial applications for waste remediation or biofuel production. We will examine examples of microbial communities with implications in health, environment, or industry. The course surveys relevant ecological theories and covers current tools and methodologies used for characterization and analysis of microbial communities.

**Credits:** 2

**Room and Schedule:** Higgins Hall 465 Th 01:00PM-02:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL 2010 and 2014; BIOL 414 and a statistics course recommended.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL513001**

### **Environmental Disruptors of Development**

**Hake, Laura E**

**Spring 2025**

Satisfies the advanced experience requirement for the Biology major. More than 100,000 chemicals are manufactured and may end up as environmental pollutants. Some have toxic effects at high concentrations and protection plans are already in place. However, embryonic, fetal or neonatal exposure to low "safe" levels of numerous pollutants can (1) induce subtle changes in developmental programs regulated by steroid hormones; (2) increase the reproductive, immune, metabolic or cognitive disorders and (3) increase the risk of adult-onset disorders (breast cancer, prostate cancer, diabetes, reduced fertility). This course will examine experiments regarding Environmental Endocrine Disruptors and consider how this work is important in the development of regulatory policy.

**Credits:** 3

**Room and Schedule:** Higgins Hall 225 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** At least two of the following courses: BIOL3040, BIOL5060, BIOL4170, BIOL4510, BIOL4140, BIOL4350, BIOL4400.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL518001**

### **Seminar in Cellular Dynamics**

**Das, Maitreyi**

**Spring 2025**

This course fulfills advanced experience requirement. This course explores topics in dynamic cellular processes using the primary scientific literature.

**Credits:** 2

**Room and Schedule:** Higgins Hall 552 TuTh 02:00PM-02:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** Prerequisites include BIOL2000 (Molecules and Cells), BIOL2040 (Investigations in Molecular Cell Biology), and a genetics course (BIOL3050 or BIOL3150). Additional coursework in cell biology or biochemistry is recommended.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL523001**

### **Immunity and Infectious Disease**

**Williams, Kenneth C**

**Spring 2025**

Satisfies the advanced experience requirement for the Biology major. This course will focus on immune cells, the immune system's response to viral and bacterial infection and the pathogenesis resulting from these responses. Topics will include questions of self and non-self in immune responses, the role of mucosal immunity and gut flora in immune responses and pathogenesis, AIDS pathogenesis, vaccines, and cutting edge technological approaches to immune therapy. Reading materials will consist of a basic immunology text, classical primary papers, and research reports.

**Credits:** 3

**Room and Schedule:** Higgins Hall 465 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL4570

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL525001**

### **Topics in Nutrition and Metabolism**

**Taghian, Danielle**

**Spring 2025**

This course satisfies the advanced experience requirement of the Biology major. In this course, students will use the primary literature to explore topics in nutrition and metabolism. The principal aim of this course is to explore the biochemical, physiological and pathophysiological relationship between nutrition and human metabolism. The biochemistry of the macro- (carbohydrates, fats, proteins) and micro- (vitamins and minerals) nutrients, consumed in the human diet, as well as the products of their digestive breakdown, will be discussed. The course will explore the molecular, biochemical and physiological mechanisms that regulate metabolism, including nutrient transport, signal transduction, energy transformation and storage in cells and tissues. The components of a healthy diet and the mechanisms by which poor diet contributes to chronic disease such as diabetes, obesity, cardiovascular disease and cancers will be discussed using primary literature.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 MW 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2000, BIOL2040, and additional 3000+-level coursework in cell biology, molecular biology, and/or physiology.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **BIOL538001**

### **Vertebrate Biomechanics**

**Kenaley, Christopher P**

**Spring 2025**

Satisfies the advanced experience requirement for the Biology major. This course will explore the physical principles underlying biological processes and mechanisms including movement, feeding, architecture, and transport. Drawing on physics and mechanical engineering, the course will explore how organisms swim, fly, walk, and consume resources, how they respond to moving fluids, and the relationship between their size and design of mechanical systems. Underlying all these topics will be investigations of how biological materials (e.g., wood, muscle, bone, skin, etc.) influence the mechanical behavior of complex life forms. The course will prepare students for more in-depth explorations of other related disciplines including ergonomics, orthopedics, kinesiology, and sports medicine.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 230 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL3030. Familiarity with basic Newtonian physics and mechanics is recommended.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL542001**

### **Cancer As A Metabolic Disease**

**Seyfried, Thomas N, Phd**

**Spring 2025**

Satisfies the advanced experience requirement for the Biology major. This seminar will review evidence showing that impaired cellular energy metabolism is the defining characteristic of nearly all cancers regardless of cellular or tissue origin. In contrast to normal cells, which derive most of their usable energy from oxidative phosphorylation, nearly all cancer cells become dependent on non-oxidative substrate level phosphorylations to meet energy demands. Evidence will be discussed supporting a general hypothesis that all hallmarks of cancer including genomic instability and metastasis can be linked to impaired mitochondrial function. A view of cancer as a metabolic disease will impact approaches to cancer management and prevention.

**Credits:** 3

**Room and Schedule:** Higgins Hall 465 TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040 and BIOL3040

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Both

**Comments:** None

**Status:** Offered

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**BIOL543001**

**Genomics and Personalized Medicine**

**Connolly, Timothy J**

**Spring 2025**

Satisfies the advanced experience requirement for the Biology major. Personalized medicine is based on the idea that each person's unique genome sequence can be used to predict risk of acquiring specific diseases, allowing for more informed choices about health. The students will be exposed to the scientific concepts and technologies empowering personalized medicine. Through lecture, research paper reading and discussion the students will understand how human genomic information has impacted current topics in biomedical research. Students will write a research paper focused on how genomic information has advanced understanding of a human disease and how translation of genomic information will impact treatment or disease detection in the future.

**Credits:** 3

**Room and Schedule:** Devlin Hall 018 MW 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040 and a genetics or genomics course. Additional coursework in biochemistry and molecular biology is strongly recommended.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL545001**

### **Advanced Lab in Cell Imaging**

**Judson, Bret**

**Spring 2025**

This course satisfies the advanced experience requirement for biology majors. This course will survey the various visualization techniques and instruments used by scientists and biomedical researchers: light microscopy, confocal, electron microscopy, super-resolution, and image processing. Students will discuss the experimental use of these techniques and instruments as described in the primary literature. The laboratory component will focus on becoming familiar with the instrumentation that we have available at Boston College. The course will culminate in individual projects of the students choosing utilizing equipment that we have in the laboratory.

**Credits:** 2

**Room and Schedule:** Higgins Hall 552 TuTh 04:00PM-06:00PM

**Satisfies Core Requirement:** None

**Prerequisites:** BIOL2040 and additional coursework in cell and/or molecular biology.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **BIOL618001**

### **Scientific Proposal Writing**

**Gubbels, Johannes M; Williams, Kenneth C**

**Spring 2025**



The purpose of the course is to develop students skills in research proposal writing, presentation, and critical evaluation. To meet these goals graduate students will be guided in the preparation and defense of an original research proposal in a field of their choice with no direct connection to their thesis topic.

**Credits:** 2

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL642001**

**Contemporary Biological Questions and Critical Analysis II**

**Meyer, Michelle M**

**Spring 2025**

Emphasis is on learning from, and proficiency with, the primary literature. Learn how to read and evaluate scientific literature across areas in contemporary biology. Identify key assumptions and data critical to significance of the work. Articulate both strengths and weaknesses of a published work Application of concepts/methods in written assignments. Gain functional understanding of diverse departmental research areas

**Credits:** 2

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL644001**

**GRAD Molecular and Cellular Control Mechanisms**

**Annunziato, Anthony T, PHD**

**Spring 2025**

Introduce topics, relevant history and methodologies of Molecular Biology Present the experimental evidence for current ideas and models Show that science is a human endeavor, and introduce selected key scientists and their discoveries.

**Credits:** 2

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL701201**

**Graduate Research Experience III**

**Das, Maitreyi**

**Spring 2025**

This seven-week research experience is designed to provide first year students with both technical and intellectual preparation to work in a faculty member's laboratory. Projects are assigned by the faculty advisor. To help develop communication skills, at the end of the seven week period, students give a 10-12 minute talk to the department describing their research.

**Credits:** 1

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL806001****Departmental Seminar****Hoffman, Charles****Spring 2025**

This is a series of research seminars conducted by leading scientists, both from within the department and from other institutions, that are presented on a regular (usually weekly) basis.

**Credits:** 0**Room and Schedule:** Higgins Hall 310 TuTh 03:00PM-05:00PM**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Spring**Student Level:** Graduate**Comments:** None**Status:** Offered

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**BIOL814001****Successful Science Communication****Olins, Heather C****Spring 2025**

Strong communication skills are a requirement for success in science, but many early-career scientists lack confidence and training related to aspects of their science communication. This interactive and participant-focused seminar was designed to help early-career scientists become more successful communicators. Topics covered include: identifying personal communication goals, why and how scientists communicate, tailoring communication to particular audiences, honing your message, and delivering effective presentations.

**Credits:** 1**Room and Schedule:** By Arrangement; Higgins 416**Satisfies Core Requirement:** None**Prerequisites:** None**Corequisites:** None**Cross-listed with:** None**Frequency:** Annually**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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**BIOL991101**

**Doctoral Continuation**

**Meyer, Michelle M**

**Spring 2025**

All students who have been admitted to candidacy for the Ph.D. degree are required to register and to pay the fee for doctoral continuation during each semester of their candidacy. Doctoral Continuation requires a commitment of at least 20 hours per week working on the dissertation.

**Credits:** 1

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Graduate

**Comments:** None

**Status:** Offered

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