

RESEARCH COURSES:

5001 – 5003W Research I and II

Minimum of 9 hours conference and independent work; 3 credits each term

Independent research in an approved area supervised by a faculty member.

Prerequisite of 5001: one of the following: Biol 1002, 3002, 3004 and permission of the sponsoring faculty member and department chairperson.

Prerequisite of 5002: Biol 5001 and permission of the sponsoring faculty member and department chairperson.

HONORS RESEARCH COURSES:

Students with superior records and the recommendation of a department faculty member may apply to the chairperson for permission to register for courses described below. Students may not register for more than six credits in honors courses in the department in one term:

5010 – 5014W Independent Research I, II, III, IV

Minimum of 9 hours conference and independent work; 3 credits each term

Independent research supervised by a faculty member. Weekly conference. Thesis or report.

Prerequisite of 5010: Biol 1002 or completion of at least two advanced Biology Department electives with a grade of A or B in each; or, any two of the following: 3002, 3004 with a grade of A or B in each; and permission of the instructor and the chairperson.

Prerequisite of 5012: Biol 5010 and permission of the instructor and the chairperson.

Prerequisite of 5013: Biol 5012 and permission of the instructor and the chairperson.

Prerequisite of 5014: Biol 5013 and permission of the instructor and the chairperson.

5020 Colloquium

Minimum of 9 hours recitation, conference and independent work; 3 credits each term

Intensive reading in, and group discussion of, a special field. Students should consult department bulletin boards for current offerings. A term report or examination may be required.

Prerequisite: Biol 1002 or equivalent.

DECLARING YOUR MAJOR

When should you declare your major?

Although you may declare your major at any time, it is usually advisable to wait until you accumulate at least 40 credits. You must declare your major before the end of the semester in which the combination of credits earned and credits for which you are currently registered total 61 or greater.

How do you declare your major?

When you are ready to declare your major, you will meet with your assigned Biology Faculty adviser – whose name, office hours and contact info you will find posted outside of the Biology Department main office in 200NE. You should bring with you a current copy of your transcript and a completed Declaration of Major Data Sheet (available in the lobby of the Biology Department, 200NE).

**Department of Biology
Brooklyn College
200NE
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BIOLOGY DEPARTMENT



COURSE DESCRIPTIONS FOR BIOLOGY MAJORS



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Brooklyn College

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BIOLOGY DEPARTMENT REQUIRED COURSES:

1001 General Biology 1

Hours: 3 Lecture, 3 Lab; 4.5 credits

Systems, ecological and evolutionary biology. Integration of plant and animal form and function with biological concepts and theories of evolution, genetics, development, homeostasis, ecology-biodiversity, bioenergetics and bioinformatics. (Not open to students who have completed, with a grade of C- or higher, the following: Biol 1080 [3], or both Biol 1071 [34.1] & Biol 1072 [29].)

Prerequisite: None.

1002 General Biology 2

Hours: 3 Lecture, 3 Lab; 4.5 credits

Cellular & molecular biology. Specific molecular process occurring in and around cells of evolutionarily diverse organisms. Biological concepts and theories of evolution, genetics, development, homeostasis, ecology-biodiversity, bioenergetics and bio-informatics. (Not open to students who have completed with a grade of C- or higher, the following: Biol 1081 [4], or both Biol 2073 [17] & 2074 [17.1].)

Prerequisite/Co-requisite: Successful completion of Biol 1001 with a grade of C- or higher, or both Biol 1071 & 1072 with a grade of C- or higher in each course, or by permission of the department; Chem 1050 or 1100 or 2050 (any of which may be taken concurrently by permission of the department).

3003 General Microbiology

2 hours; 2 credits

Microbiology as a science, structure and function of microbes, microbial interrelationships, microbial metabolism, mechanisms of recombination, and microbes as agents of disease.

Prerequisite: Biol 1002.

3004 General Microbiology Laboratory

4 hours; 2 credits

Techniques for isolation, cultivation, characterization of bacteria and the use of microbes as experimental organisms.

Prerequisite/Co-requisite: Biol 3003.

3006/3007W Evolution

2 hours; 2 credits

Introduction to major ideas and models of evolution; Emphasis on natural selection and other processes in explaining structures and functions of individuals and populations; Current ideas to account for the diversification of life on earth.

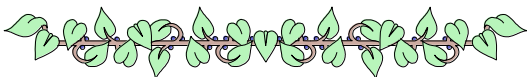
Prerequisites: Biol 3011 (and Eng 1012 for 3007W).

3011 Genetics

3 hours; 3 credits

Principles and problems of heredity, including gene transmission, mutation, recombination and function.

Prerequisite: Biol 1002.



ELECTIVE COURSES:

The following provides a brief overview of the most frequently taught Biology electives. Not all electives courses are offered every semester:

2001 Organismic Biology II, Zoology

2 hours; 2 credits

Key concepts in the structure and development of animals with special reference to those species used as models in contemporary developmental biology.

Prerequisite: Biol 1002

Co-requisite: Biol 2002 or 2002W to be taken concurrently.

2002/2002W Animal Form and Function Laboratory

4 hours; 2 credits

Dissection and examination of selected animal groups.

Prerequisite: Biol 1002

Co-requisite: Biol 2001 to be taken concurrently.

2010 Cell and Molecular Biology

3 hours; 3 credits

Advanced elective that focuses on basic cell and molecular biology concepts and principles. *Prerequisites:* Biol 1002; and Chem 2100.

3083 Ecology

3 hours lecture, 3 credits

Populations of plants and animals, their relationships to environments and each other. Natural communities, their structure and function. Field and laboratory methods in ecology.

Prerequisites: Biol 1002, 2001, 2002, 3006/3007W.

4001 Field Studies in Botany

30 hours lecture, 60 hours field work and laboratory work; 4 credits

Observe associations in typical plant habitats. Lab consideration of characteristics, evolutionary relationships and geography of flowering plants. Summer session. *Prerequisite:* Biol 1002.

4010 Macromolecular Structure & Bioinformatics

3 hours; 3 credits

The fundamentals of biological macromolecular structures and an introduction to the computational tools important in determining their biological functions. *Prerequisite:* Instructor's Permission.

4011 Molecular Biology of Development

1 hour recitation, 3 hours lecture; 4 credits

This course offers a comprehensive discussion about principles of animal development from one fertilized cell to a young adult. It analyzes representative species especially humans and incorporates modern applications of developmental biology in diagnosing and treating human diseases.

Prerequisites: Biol 1002, 3001; and Chem 2500 or 3510.

4012 Medical Microbiology

3 hours; 3 credits

Microbes as disease agents. Examination of host-microbe interactions, the immune response, nature and mechanisms of infectious diseases, chemotherapy, drug resistance, and epidemiology. *Prerequisite:* Biol 3003.

4013 Principles of Immunology

3 hours; 3 credits

This is a comprehensive course about the core concepts and practice of contemporary immunology. It focuses on the immune system in mammals and clinical implications in humans. *Prerequisite:* Biol 3003.

4015 Recombinant DNA Technology

2 hours lecture, 1 hour recitation; 3 credits

Introduction to recombinant DNA technology. Application to current biological research. Basic biological understanding that supports recombinant DNA laboratory technology.

Prerequisites: Biol 1002.

4020 Plant Physiology

2 hours; 2 credits

Introduction to major concepts in plant physiology including water household, photosynthesis, respiration, lipid biosynthesis, secondary metabolism, genetic engineering, and environmental physiology. *Prerequisites:* Biol 1002; and Chem 1100.

4021 Plant Physiology Laboratory

4 hours; 2 credits

Experiments designed to gain better understanding of fundamental questions encountered in plant physiology, covering topics such as water household, transport, photosynthesis, respiration, nitrogen fixation, and secondary metabolism.

Prerequisite: Biol 4020

4022 Biotechnology of Algae

2 hours; 2 credits

Introduction into the biology of algae with an emphasis on practical application. In addition to biology of algae, this inter-disciplinary course covers bioengineering, companies, products and markets of algae.

Prerequisites: Biol 1001, 1002; and Chem 1100.

