

DIVISION OF NATURAL SCIENCES AND MATHEMATICS

Bachelor of Arts: 120 credits

INTERSHIPS

100% of Lesley students benefit from 400+ hours of hands-on field experience and research opportunities. Working with Lesley's Internship Office, students choose from more than 280 approved sites in Cambridge and Boston, as well as 48 more (and growing!) across the U.S. and abroad

Approved sites for student internship and field experiences include:

Boston Museum of Science
 Technical Education Research Center (TERC)
 Kunz Lab of Mammalian Ecology
 New England Aquarium
 Urban Ecology Institute
 Genzyme
 Cambridge Health Alliance
 Harvard Museum of Natural History

"We take on scientific query and actively pursue solutions. We're doing hands-on, field-based environmental research here, working together, faculty and students in a community of scholarship that is energized by the possibility of discovery."

—David Morimoto,
 Director, Natural Sciences and Mathematics Division

THE LESLEY PROMISE

- The opportunity to pursue an academically rigorous education provided by some of the most respected faculty in the country
- The opportunity to explore your intellectual curiosity through a wide range of undergraduate and graduate level courses
- The opportunity to learn in the work environment, exploring potential careers, accruing skills and refining your choices for life beyond Lesley
- The opportunity to have your voice be heard, with small classes, engaging instructors and a supportive learning environment
- The opportunity to learn and work abroad, to gain a perspective essential for a global economy
- The opportunity to take yourself as far as you want to go

Marine Studies Consortium (MSC)

This consortium is an association of 17 Massachusetts higher education and research institutions. MSC courses offer unique learning opportunities in marine and aquatic sciences, environmental policy, and environmental management. The courses are potential choices for Natural Sciences and Mathematics and Environmental Studies majors, as well as Education majors (Introduction to Marine Mammals, especially). The Biology of Fishes course, offered at the New England Aquarium, may be the only ichthyology course in the world where students use the resources of a major aquarium at every class meeting. Other courses, such as the Biology of Whales and Water Resources Management, are offered nowhere else in New England at the undergraduate level. Courses are held during the evenings on the campuses of member institutions.

ENGAGED IN REAL WORLD LEARNING

WHAT TO EXPECT AT LESLEY

While technically a division, at Lesley we like to refer to Mathematics and Natural Sciences as interdisciplinary branches, rooted in inquiry-based learning and quantitative theory, broadened through the process of discovery in conjunction with hands-on, day-to-day learning opportunities in the field.

Students learn to be investigators, questioners, and practitioners, coaxing new ideas from complex theories that are as ever-changing as the natural world. Small classes work in teams with teacher/mentors to unearth subjects in classroom laboratories. They then develop their hypotheses in hands-on field exploration and community-based environmental research that incorporates all aspects of biological life. Students cultivate urban gardens, trek New Hampshire forests, take on internships at the Urban Ecology Institute located on campus, and study the ecology of Guyana for eight weeks abroad. Integral to their study, students develop a keen sense of civic engagement and social responsibility while developing their critical thinking and expanding scientific research.

WHY IS THIS PROGRAM UNIQUE

Lesley College brings science and mathematics learning to life through student driven inquiry, immersion, and interdisciplinary connections. Our programs contain innovative courses in traditional scientific and mathematical disciplines, as well as field-based courses and courses such as Science in the Movies, Complementary, Integrative and Alternative Medicine, and unique courses of study in Guyana, South America. Curricula and research are framed in social and ethical policy in the context of local and global communities, as students explore the environmental, political, and social issues of our day. Students cultivate self-directed environmental research as they work together to create a community of scholarship that delves deeply into the complex global challenges we face. Lesley students make use of local schoolyards, parks, forests, marshes, harbors, and rivers as ecological investigation sites to research, find context through exploration, and make discoveries that lead to real-world solutions.

At Lesley, small class sizes ensure students learn through a community-building and interconnected lens that helps develop more deeply thinking biologists, scientists and mathematicians, using the environment as the overall integrating context.

BIOLOGY

This program provides a required core of six classes for depth in understanding the theory and methodology of the discipline, as well as a strong background in mathematics, chemistry, and physics. Students have a choice of electives in areas that pique their personal interest, taking on twelve credits of internship related work in which to connect theory and practice. Courses culminate in a seminar and research experience. The program also includes an advanced track, strongly recommended for students who want to pursue graduate studies in biological sciences.

ENVIRONMENTAL SCIENCE

This program prepares individuals for graduate-level training in environmental sciences, or for entry-level employment in a broad and growing spectrum of environmental careers. Students who complete this major will gain scientific literacy and both broad and deep knowledge of biology, earth sciences, or health within the context of the complex environmental challenges we face today. An integrated science track, designed specifically for future Middle School, Elementary, Early Childhood, and Special Education teachers, allows students to meet teacher licensure requirements for Middle School General Science and leads to comprehensive understanding of environmental issues and the science associated with them.

ENVIRONMENTAL STUDIES

The interdisciplinary field of environmental studies explores the complex relationships of humans (individuals, communities, society) to their physical environment. The major allows students to gain a first-hand appreciation for their physical surroundings and a broad and deep understanding of our dependencies on the natural world. In addition to a field- and research-based required core of 18 credits and a required Geographic Information Systems course, students choose 12 credits of coursework from two categories: Naturalist Education and Ecological Philosophy; Public Policy and Civic Engagement, and 9 credits of internship/experiential coursework. Throughout the program, a systems-based perspective and civically engaged environmental field research are emphasized. Students explore science-informed solutions to environmental problems involving government action, collective effort, and personal initiative as they gain a deep understanding of and appreciation for the complexity of human-environment interactions.

MATHEMATICS

This program is designed to provide students a greater understanding of the organization of mathematics and the opportunity for a more in-depth study of its context. The emphasis is on developing students' abilities to use mathematics to better understand, represent, and solve problems in our world. A primary goal of the program is to help students develop habits of mind that enable them to look at real-world problems with a critical and analytical eye and take appropriate action. Students will encounter challenging, creative and empowering ideas of mathematics that make the discipline an exceptional achievement of the human mind. This major enables students to analyze mathematical problem situations, to make decisions, to predict future outcomes, and to verify results. Students wishing to teach Mathematics have several options for majoring or minoring in education (e.g. elementary, middle school, secondary mathematics).

BIOLOGY

REQUIRED CORE (18 Credits):

Course Number	Course Title	Course Credits
CBIOL 2101	Biology 2 with Lab	3
CPHYS 1308	Investigations in Chemistry 1 with Lab (waived w/AP 4)	3
CPHYS 2210	Conceptual Physics with Lab (waived w/AP 4)	3
CPHYS 3012	Investigations in (Organic) Chemistry 2 with Lab	3
CMATH 3522	Inferential Statistics	3
CNSCI 3540	Environmental Field Research	3

Plus 24 Credits: four electives (12), a first year experiential course (3), and two internships (9)

ENVIRONMENTAL SCIENCE

REQUIRED CORE (21 Credits):

Course Number	Course Title	Course Credits
CPHYS 1104	Earth Science with Lab	3
CBIOL 1101	Biology 1 with Lab (replace with CBIOL 2101 if AP Biology 4)	3
CPHYS 1308	Investigations in Chemistry with Lab	3
CPHYS 2210	Conceptual Physics with Lab	3
CMATH 2148	Concepts and Applications of Calculus 1	3
CMATH 3522	Inferential Statistics	3

CHOOSE ONE:

Course Number	Course Title	Course Credits
CNSCI 2100	Humans and Environment	3
CPHYS 3010	Our Changing Climate	3

Plus 24 Credits: three electives (9), two research/field courses (6), a first year experiential course (3), and an internship (6)

ENVIRONMENTAL STUDIES

REQUIRED CORE (18 Credits):

Course Number	Course Title	Course Credits
CNSCI 3540	Environmental Field Research	3
CPHYS 1104	Earth Science with Lab	3
CBIOL 1101	Biology with Lab (replace with CBIOL 2101 if AP Biology 4)	3
CNSCI 2101	Introduction to GIS (Experiential Requirement)	3
CMATH 3522	Inferential Statistics	3
CECON 2101	Microeconomics	3

CHOOSE ONE:

Course Number	Course Title	Course Credits
CNSCI 2100	Humans and the Environment	3
CPHYS 3010	Our Changing Climate	3

Plus 21 Credits: four electives from two categories (Natural Education; Ecological Philosophy, Public Policy, and Civic Engagement; 12), a first year experiential course (3), and an internship (6)

MATHEMATICS

REQUIRED CORE (12 Credits):

Course Number	Course Title	Course Credits
CMATH 2148	Concepts and Applications of Calculus 1 (formerly Conceptual Calculus)	3
CMATH 3524	Concepts and Applications of Calculus 2 (formerly Applications of Calculus)	3
CMATH 3522	Inferential Statistics	3

CHOOSE ONE:

Course Number	Course Title	Course Credits
CMATH 4100	Field Research in Mathematics	3
CNSCI 3540	Environmental Field Research	3

Plus 27 Credits: six electives from two categories (18), a first year experiential course (3), and two internships (6)

For more information and to see additional course offerings, visit www.lesley.edu/lc/programs.