

RUTGERS

School of Environmental
and Biological Sciences

UNDERGRADUATE DEGREE

Ecology, Evolution, and Natural Resources



WHY ECOLOGY, EVOLUTION & NATURAL RESOURCES?

The Major in Ecology, Evolution and Natural Resources (EENR) prepares the next generation of scientists to address critical and emerging biological issues in a rapidly changing world. Students build a foundation in three core areas: 1) the structure and function of ecological systems, 2) evolutionary processes that shape organisms and their interactions, and 3) modern tools to manage biotic natural resources (see page 3). Students can then specialize by selecting from a broad array of advanced courses and by pursuing independent research with a member of the faculty. Students may also choose from Certificate Programs and Minors that provide training in specialized areas. Upon graduation, students are prepared for careers in conservation and natural resource management and for further education in graduate or professional school.



WHAT IS THE RUTGERS ADVANTAGE?

- Nationally recognized program
- World-class faculty
- Strong faculty commitment to students
- Low student/teacher ratio
- Individualized faculty advising
- Flexible curriculum – hands-on learning
- Outstanding field and laboratory facilities
- On and off-campus research opportunities
- Excellent scholarship opportunities
- Assistance with internship placement

WHAT ARE THE CAREER OPPORTUNITIES WITH AN EENR DEGREE?

Our students are broadly trained in fields ranging from the evolution and ecology of animals, plants, and microbes, to forestry and natural resource management, to marine/freshwater ecology, to the conservation of threatened and endangered species. In addition to professional and graduate schools, our students gain employment in diverse government and private sector jobs. Pictured on the right is a sample of directions taken by previous EENR graduates. Over the next decade, employment opportunities for our graduates are projected to grow by up to 21% for biological sciences and 28% for environmental/conservation ecologists (US Bureau of Labor Statistics).

EXAMPLES OF WHERE PREVIOUS EENR GRADUATES HAVE GONE

UNIVERSITY OF MICHIGAN
UNIVERSITY OF GEORGIA
MCGILL UNIVERSITY
UC BERKELEY
VIRGINIA TECH
DUKE UNIVERSITY
RUTGERS GRADUATE SCHOOL OF EDUCATION
STANFORD
MIT

GRADUATE SCHOOL

MEDICAL SCHOOL
U. PENN. VETERINARY SCHOOL
TUFTS VETERINARY SCHOOL
NC STATE VETERINARY SCHOOL
GEORGETOWN LAW SCHOOL

PROFESSIONAL SCHOOL

GOVERNMENT
NJ Fish and Wildlife Service/NYS Dept. Env.
Conservation & National Park Services
US Geological Survey

NGOs
Audubon Society
American Museum of Natural History
Habitat for Humanity
The Nature Conservancy

PRIVATE SECTOR
Environmental Systems Research Institute
Bartlett Tree Experts
Middle/High School Teachers

EMPLOYMENT



CURRICULAR FRAMEWORK: FUNCTIONAL CORE AND ELECTIVES

Students who graduate with a B.S. in Ecology, Evolution, and Natural Resources have a broad background in biology with a focus on ecological interactions, evolutionary processes, and management problems in the natural world. Introductory core courses in biology, chemistry, physics, and mathematics give students the foundation and critical thinking skills they need to master the three elements of the major: ecology, evolution, and natural resource management. The major provides a flexible curriculum to meet the diverse interests and needs of students. A sampling of upper-level electives in each of the three main areas is depicted below. Many students enhance their professional training by simultaneously completing one of the Certificates, or a Minors (right).

The Major in Ecology, Evolution, and Natural Resources offers the most 'hands-on' and field-oriented biological learning experience at Rutgers. Laboratory courses range from state-of-the-art geographic information systems (GIS) to week-long off site immersive experiences in the Adirondacks (winter), the Highlands of Northwestern New Jersey, and the Jersey Shore at Rutgers Tuckerton Marine Field Station. Students learn how to conduct observations and perform experiments in the natural habitats of organisms, and they work in the Rutgers Ecological Preserve for a case study of the applied discipline of natural resource management.



Evolution of Eukaryotes

Plant Diversity and Evolution

Evolution of Animal Behavior

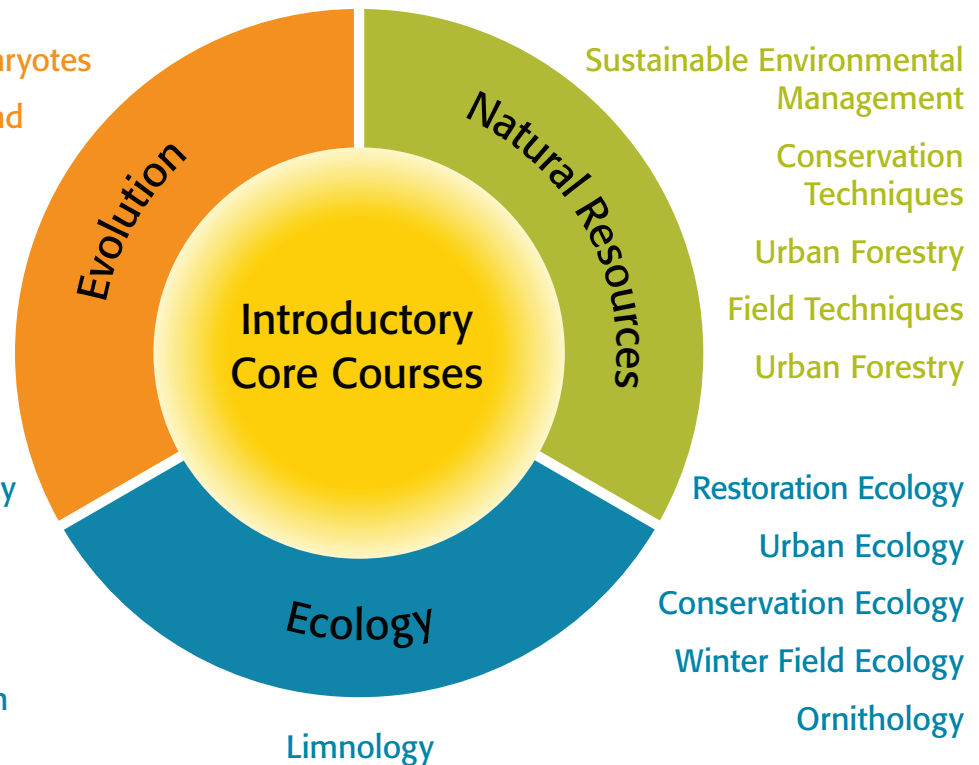
Evolution of Infectious Diseases

Molecular Ecology

Parasite Ecology

Wildlife Diseases

Wildlife Ecology and Conservation



CERTIFICATION AND MINOR PROGRAMS

Certificate in Environmental Geomatics

The Certificate in Environmental Geomatics is designed to give students a working knowledge of remote sensing and geographic information system (GIS) technology and its application to environmental resource monitoring and management.

Certificate in Evolutionary Medicine

The Certificate in Evolutionary Medicine complements the education of pre-medical students and biomedical researchers. It offers a rigorous evolutionary framework for understanding human illness and applications to public health planning.

Certificate in Urban/Community Forestry

Urban and community forestry is the fastest growing segment of the forestry profession. This certificate provides the necessary credentials for employment by providing fundamental knowledge along with hands-on expertise.

Minor in Science Teacher Education

This SEBS minor is a gateway to a fifth year of study in the Graduate School of Education, which culminates in a master's degree with New Jersey certification as a teacher of science or agriculture.

Minor in Sustainability

The Minor in Sustainability is designed to give students the opportunity to explore the complex principles of sustainability, the issues and interactions between communities, businesses and societies.

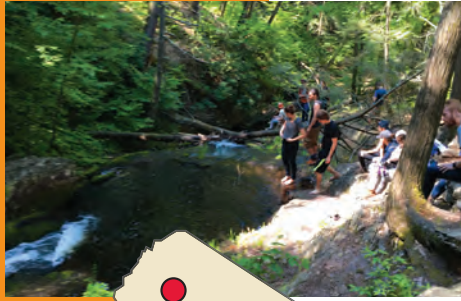
FIELD COURSES

EENR students have lots of opportunities to take field courses that explore the remarkably wide array of marine, freshwater, and terrestrial ecosystems in New Jersey. Within a single day, one can visit and study habitats of barrier beach islands, the vast salt marshes and coastal bays, the fabled Jersey Pine Barrens, and the forests and hills of the Highlands.

RESEARCH EXPERIENCE

The EENR program provides a wide variety of research opportunities for students in the major. Students join faculty in their laboratories or in the field for hands-on research experience. EENR students have completed projects ranging from evolutionary endocrinology, ethnobotany to bioinformatics of algae, shorebird conservation and native bee diversity. Generous support is available for student researchers, e.g. Aresty Research Center, SEBS General Honors, George H. Cook Scholars Program, in addition to funding from professors' research grants.





● **Lindley G. Cook 4-H Camp, Stokes State Forest.** Operated by Rutgers Cooperative Extension, this educational camp is located near the Appalachian Trail in the ridge and valley region of New Jersey. Diverse fauna and flora are found in this transitional forest area of mountains and streams. The camp serves as an ideal venue for introducing students to the practice of forest ecology.

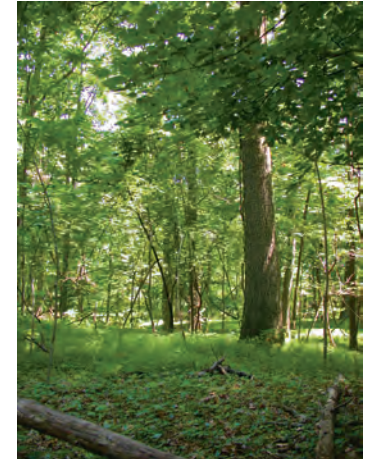


● **Liberty State Park.** Occupying more than 1,100 acres across the Hudson River from lower Manhattan and with access to the Statue of Liberty and Ellis Island, Liberty State Park is of historic and ecological interest. Formerly a waterfront industrial and railroad area, this urban state park now supports research on spontaneous and managed ecological restoration.



● **Hutcheson Memorial Forest.**

A unique area (26 ha) comprising one of the last uncut stands of primeval, mixed-oak forest in the Mid-Atlantic states and the longest continuous experiment on old-field succession in North America.



● **Pinelands Research Station.** Located near Pemberton, NJ in the ecologically significant Pinelands National Preserve; provides dormitory and laboratory space for students and faculty to study soil ecology, forest carbon dynamics, fire ecology, and other unique aspects of pine barrens flora and fauna.

● **Haskins Shellfish Research Laboratory.** Located on the Delaware Bay in the southern New Jersey town of Bivalve; provides education and research opportunities in shellfish and finfish fisheries conservation and management.



● **Rutgers University Marine Field Station.** Uniquely situated on the Mullica River – Great Bay estuary near Tuckerton, NJ; provides access for classes and research in one of the most pristine estuarine systems of the east coast.

WHAT ABOUT FINANCIAL AID?

Rutgers University offers a comprehensive program of federal and state grants, loans, and work-study jobs, based on financial need and scholastic achievement, see studentaid.rutgers.edu.

SCHOLARSHIPS

- **Karen Smoyak Hoffman Student Prize for Natural Resource Management.** For students majoring in natural resource management, based on academic merit, leadership skills, interest in research, and a commitment to the advancement of natural resource management.
- **Bruce A. Hovland Memorial Scholarship in Forestry.** For a student majoring in natural resource management with a forestry option; based on academic merit and financial need.
- **Robert Hanna Soil and Water Conservation Club Award.** For undergraduate students majoring in plant science, environmental science, natural resource management, and related fields, with interest in soil and water conservation, involvement in the club, and academic merit.
- **Michael Kuser Award.** For an outstanding junior or senior based upon merit, leadership, financial need, and interest in natural resource management and applied ecology.
- **Jacob Groendyke Award.** For a student majoring in horticulture, forestry, and related fields; based on academic merit, financial need, demonstrated interest, and New Jersey residency.
- **Robert P. Claus Memorial Endowed Scholarship Fund.** For a student enrolled in the Teaching Education Program; based on academic merit and financial need.
- **Murray and Helen Buell Scholarship in Ecology.** For undergraduate students participating in undergraduate research and for graduate students willing to mentor undergraduate students; based on academic merit.

DEPARTMENTAL SENIOR AWARDS

James Applegate Award for outstanding senior in Wildlife

E.B. Moore Forestry Award for outstanding senior in Forestry

Roger Locandro Award for outstanding senior in Natural Resources

M. Buell Award for outstanding senior in Ecology

Peter Smouse Award for outstanding senior in Evolution



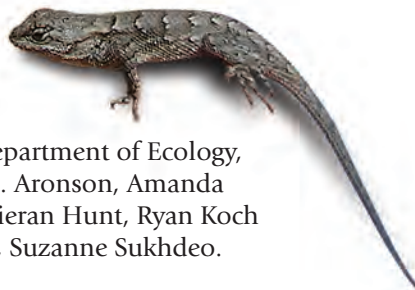
STUDENT CLUB

EENR students participate in a variety of student organizations, including the Naturalist Club, and animal-watching. A student-run organization that promotes collegial events including hikes, canoe trips, camping and bird-, plant- and animal-watching. Students may also participate in the Wildlife Society.



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Parasite Ecology in Sandy Hook.

