



# Ecosystem Health

The ENST concentration in **Ecosystem Health** gives students the concepts and skills to work in this broad and increasingly important field with wide ranging applications in the environmental science and public health fields. The field encompasses environmental factors and ecosystem functions that affect human health and the effects of human activities on the ecosystem products and services we depend on. Example topics within the field include ecological risk analysis, environmental toxicology, environmental impact assessment, chemical fate and transport, human health risk assessment, industrial hygiene, air quality, environmental microbiology, food safety and security, and biodiversity and human health.

## ENST Core (44 credits)

Semester Projected Semester Taken Final Grade

- ▲ **BSCI 170&171** Principles of Molecular & Cellular Biology & Lab (F, Sp, Su; 4)
- ▲ **MATH 120** Elementary Calculus I (F, Sp, Su; 3)
- ▲ **BSCI 160&161** Principles of Ecology & Evolution & Lab (F, Sp, Su; 4)
- ▲ **CHEM 131&132** Fundamentals of General Chemistry & Lab (F, Sp, Su; 4)
- ▲ **ENST 200** Fundamentals of Soil Science (F, Sp; 4)
- ▲ **ENST 233** Introduction to Environmental Health (F, Sp; 4)
- ▲ **CHEM 231&232** Organic Chemistry I & Lab (F, Sp, Su; 4)
- ▲ **PHYS 121** Fundamentals of Physics I (F, Sp, Su; 4)
- ▲ **GEOG 306** Introduction to Quantitative Methods for the Geographic Environmental Sciences (F, W, Sp, Su; 3) **-or-**
- ▲ **BIOM 301** Introduction to Biometrics (F, W, Sp; 3)
- ▲ **ENST 360** Ecosystem Ecology (F; 4)
- ◆ **ENST 389** Professional Internship (F, W, Sp, Su; 3)

### Senior Integrative Experience (F, Sp; 3) - **Choose One**

- ◆ **ENST 388** Honors Thesis Research (F, Sp; 3) **-or-**
- ◆ **ENST 470** Ideas into Impact (Sp; 3) **-or-**
- ◆ **ENST 472** Capstone (F, Sp; 3) **-or-**
- ◆ **ENST 486** Senior Professional Internship (F, Sp; 3)

## Concentration Core (17 credits)

Semester Projected Semester Taken Final Grade

- BSCI 207** Principles of Biology III - Organismal Biology (F, Sp; 3)
- BSCI 222** Principles of Genetics (F, Sp, Su; 4) **-or-**
- BSCI 223** General Microbiology (F, Sp, Su; 4)
- ENST 333** Ecosystem Health and Protection (F; 3)
- ENST 334** Environmental Toxicology (Sp; 3)
- ENST 436** Emerging Environmental Threats (Sp; 3)

- ▲ Benchmark to be completed by 30 credits
- ▲ Benchmark to be completed by 60 credits
- ▲ Benchmark to be completed by 90 credits
- ◆ Requires prior approval

Students must maintain an overall GPA of 2.0 and a grade of **C- or better for all ENST required classes.**

Courses not selected here may count as technical electives on the back, but cannot be counted as both an elective and as a concentration CORE/DEPTH course.



## Concentration Depth

(6 credits - Choose 2 courses)

- ENST 403** Invasive Species Ecology (F; 3)
- ENST 423** Soil-Water Pollution (Sp; 3)
- ENST 432** Environmental Microbiology (F; 3)

*Semester  
Projected*

*Semester  
Taken*

*Final  
Grade*

Any combination of electives can be taken. Courses appear in blocks of related topics to assist students in tailoring their program to particular interests with Ecosystem Health. Other 300 or 400 level electives may be substituted - with advisor's approval.

## Technical Electives (12 credits)

### Environmental Health

- CHEM 241/242** Organic Chemistry II & Lab (F, Sp; 4)
- ENST 405** Energy and Environment (Sp; 3)
- ENST 415** Renewable Energy (F; 3)
- ENST 485** Water Management in Urban Environments (F; 3)
- GEOG 272** Intro. to Earth Observation Science (F, W, Sp, Su; 3)
- GEOG 415** Land Use, Climate Change, and Sustainability (Sp; 3)
- GEOL 452** Watershed and Wetland Hydrology (F; 3)
- GEOL 453** Ecosystem Restoration (F; 3)
- MEES 498I** Topics in MEES: Chesapeake Bay Health (F; 3)

*Semester  
Projected*

*Semester  
Taken*

*Final  
Grade*

### Ecological Processes

- BSCI 467** Freshwater Biology (TBA; 4)
- ENST 422** Soil Microbial Ecology (Sp; 3)
- ENST 450** Wetland Ecology (F; 3)
- ENST 460** Principles of Wildlife Management (F; 3)
- PLSC 400** Environmental Plant Physiology (Sp; 4)

### Human Health

- BSCI 422** Principles of Immunology (F, Sp; 3)
- BSCI 424** Pathogenic Microbiology (F; 4)
- BSCI 437** General Virology (F, Sp; 3)
- BSCI 450** Mammalian Physiology (F, Sp; 4)
- BSCI 477** Ecology & Evolution of Infectious Disease (Sp; 3)
- BSCI 483** Insects, Pathogens, & Public Health (F; 3)

### Cultural or Social Dimensions

- ENST 410** Ecosystem Services: an Integrated Analysis (Sp even; 3)
- GEOG 331** Intro to Human Dimensions of Global Change (Sp; 3)
- GEOG 431** Culture and Natural Resource Management (F; 3)
- PLCY 301** Sustainability (F, Sp; 3)

### Other Technical Electives