



Ecological Technology Design

The ENST concentration in **Ecological Technology Design** prepares students for integrating natural systems with the built environment to solve environmental problems while achieving economic, ecological and social sustainability. The science and applications of using natural systems, processes and organisms to address environmental issues have evolved during the last few decades to a mature level whereby there are strong employment opportunities for graduates that are cross-educated in ecology and technology.

ENST Core (44 credits)

- ▲ **BSCI 170&171** Principles of Molecular & Cellular Biology (F, Sp, Su; 4)
- ▲ **MATH 120** Elementary Calculus I (F, Sp, Su; 3)
- ▲ **BSCI 160&161** Principles of Ecology & Evolution (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, Sp; 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 II (F, Sp; 3) **-or-**
- ◆ **ENST 486** Senior Professional Internship (F, Sp; 3) **-or-**
- ◆ **ENST 489** Research Experience (Group or individual project) (F, Sp; 3)

Concentration Core (7 credits)

- **ENST 481** Ecological Design (Sp; 4)
- **MATH 121** Elementary Calculus II (F, Sp; 3)

Concentration Depth: Ecology (6 Credits) - **Choose Two**

- **ENST 410** Ecosystem Services: An Integrated Analysis (TBA; 3)
- **ENST 422** Soil Microbial Ecology (F; 3)
- **ENST 450** Wetland Ecology (F; 3)
- **ENST 453** Watershed Science (TBA; 3)
- **GEOL 453** Ecosystem Restoration (F; 3)

Semester Projected	Semester Taken	Final Grade

▲ 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.

ENST Core, Concentration Core, & Concentration Depth courses not selected here may count as technical elective, but cannot be counted as both an elective and as a concentration Core/Depth course.



Concentration Depth: Design

(at least 11 Credits) - **Choose 4**

- ENST 281** Computer Aided Design in Ecology (F; 2)
- ENST 282** Ecological Innovation and Entrepreneurship (F; 3)
- ENST 405** Energy and Environment (Sp; 3)
- ENST 415** Renewable Energy (F; 3)
- ENST 443** Industrial Ecology (TBA; 3)
- ENST 485** Water Management in Urban Environment (F; 3)
- GEOG 272** Intro to Earth Observation Science (F, W, Sp, Su; 3) -**or**-
- GEOG 373** Geographic Information Systems (F, W, Sp, Su; 3) -**or**-
- ENST 456** Spatial Analysis and Ecological Sampling (F; 3) -**or**-
- INAG 237** Surveying and GPS Applications in Agriculture (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 Ecological Technology Design. Under some circumstances, other 300 or 400 level electives can be substituted with advisor's approval.

Technical Electives (12 credits)

Urban Ecosystems and Human Dimensions

- ENST 461** Urban Wildlife Management (TBA; 3)
- GEOG 331** Intro to Human Dimensions of Global Change (Sp; 3)
- LARC 452** Green Infrastructure and Community Greening (F; 3)
- PLSC 480** Urban Ecology (F; 3)

Semester Projected	Semester Taken	Final Grade

Sustainable Technology

- ENST 432** Environmental Microbiology (Sp; 3)
- ENST 441** Sustainable Agriculture (F even; 3)
- GEOL 453** Ecosystem Restoration (F; 3)
- INAG 250** Fundamentals of Agricultural Mechanics (F, Sp; 3)
- PLSC 425** Green Roofs and Urban Sustainability (Sp; 1)

Wetlands

- ENST 430** Wetland Soils (Sp; 3)
- ENST 450** Wetland Ecology (F; 3)
- ENST 452** Wetland Creation and Restoration (Sp; 3)
- GEOL 452** Watershed and Wetland Hydrology (F; 3)

Ecology and Ecosystem Management

- BSCI 467** Freshwater Biology (F; 3)
- ENST 373** Natural History of the Chesapeake Bay (TBA; 3)
- ENST 460** Principles of Wildlife Management (F; 3)
- PLSC 471** Forest Ecology (Sp; 3)

ENST Core, Concentration Core, & Concentration Depth courses not selected here may count as technical elective, but cannot be counted as both an elective and as a concentration Core/Depth course.