



Degree Information

ESSM offers graduate degrees at both the master's and doctoral levels. The thesis-based Master of Science and Ph.D. degrees are designed for research or academic careers. Non-thesis master's degrees provide advanced training in natural resource conservation and management for those who seek a professional career outside of research.

In ESSM it is possible to specialize in one or more of four broad research areas: ecosystem science; ecosystem management; spatial sciences; or genetics, systematics, evolution.

ECOSYSTEM SCIENCE

Fundamental scientific knowledge of natural and human-dominated ecosystems is essential to enable mankind to understand and respond to current and future environmental challenges. Our faculty and students are investigating key scientific questions related to the structure and function of ecosystems, and developing new knowledge that will help us sustain ecosystem services and protect biodiversity. Students can select their research topics from the following areas:

- Biogeochemistry
- Ecohydrology
- Ecological restoration
- Ecophysiology
- Global change ecology
- Landscape ecology



**AGRICULTURE
& LIFE SCIENCES**
TEXAS A&M UNIVERSITY

Graduate Studies in

**Ecosystem
Science and
Management**

MS

MAgr

PhD

or

**Natural
Resources
Development
MNRD**

**Department of Ecosystem
Science and Management**

ECOSYSTEM MANAGEMENT

Ecosystem management is an integrative and science-based approach to resource management as a way to address the opportunities and challenges of the 21st century. Major environmental problems require approaches that work with natural and social systems rather than against them. Current research areas include:

- Forest, rangeland and wetland management
- Watershed management
- Natural resource economics
- Human dimensions of ecosystem management
- Environmental policy, politics and administration

SPATIAL SCIENCES

Spatial sciences allow students to observe, explore and analyze the Earth and its ecosystems. Ecosystem Science and Management requires understanding spatial processes that define ecosystem dynamics. The spatial sciences in ESSM provide students with a set of contemporary and cutting-edge technologies for inventory, characterization and mapping, and assessment of natural and man-made environments. Research areas can include any of the ecosystem science or ecosystem management topics with application of:

- Geographic information science
- Remote sensing
- Spatial analysis and statistics

GENETICS, SYSTEMATICS, EVOLUTION

Genetics, systematics and evolution allow students to understand species and ecosystems at a broad range of spatial and temporal scales and are fundamental to understanding biodiversity. Methodological advances have allowed us to understand the evolution and adaption of species, to determine which genes and alleles may be valuable for breeding trees adapted to future environments, and to genetically modify plants to produce new or

different products or to be more resistant to biotic and abiotic stresses. Students can consider research topics in the following areas:

- Biodiversity
- Genomics
- Molecular biology
- Phylogenetics
- Plant population genetics
- Plant systematics and evolution

Facilities

ESSM research and teaching resources include several state-of-the-art facilities, including the Stable Isotopes for Biosphere Sciences Lab, the Spatial Sciences Lab, the S.M. Tracy Herbarium and a network of field research stations throughout Texas. Students have access to a world-class library system and campus-wide high-speed wireless.

Admissions

Admission is based on your undergraduate record (3.0 GPA minimum), relevant coursework, competitive GRE scores (50th percentile or above) and related experiences.

Financial Support

Competitive departmental assistantships may be available. Other sources of funding include fellowships from Texas A&M, the federal government or private sources. Students also collaborate with faculty advisors for scholarship and fellowship applications and writing grant proposals.

Contact Information

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