BIOLOGY M.S.

All students must meet the Requirements for the Master’s Degree

OVERVIEW

While faculty research interests fall into two broad groupings, we encourage students to consider research projects that cross disciplines.

The broad groupings are:

1. cell and molecular biology, neuroscience, physiology and behavior
2. ecology and evolution

Current research projects under the first group include: molecular biology of cilia; chemical sensing by micro-organisms; signal transduction in neurodevelopment and chemical sensing; visual system development in zebrafish; smell and taste receptor cell function using molecular biology, calcium imaging and electrophysiology; olfactory and taste driven behavior; muscle function, development, and aging; structure and biomechanics of myofilaments; proteomics, biochemistry and cell biology applied to molecular mechanisms of signal transduction governing neuronal positioning; thermal stress and cellular physiology; and chemotherapeutic drug effects on taste cells.

Current research projects under the second group include: evolutionary genomics and systems physiology in sea urchins and horned beetles; microbial ecology and genomics; evolutionary genomics of RNA viruses; physiology, development and evolution of marine invertebrates and fruit flies; community ecology and evolutionary ecology of carnivorous plants; phylogenetics to study evolution and biogeography of spiders and other groups; ecology, zoogeography and conservation of small mammals; modeling and analysis of complex biological and environmental systems; multi-species interactions among plants, their mutualist pollinators and antagonists that include herbivores, seed predators, and competitors; developmental plasticity interactions with extreme sexual size dimorphism in spiders; evolution, ecology, and behavior of social insects; and ecology and evolution of disease.

Current research that crosses between disciplines includes proteomic analysis of Chagas disease vectors; evolution and adaptation of flight muscle proteins; evolution of muscle and courtship behavior in flies; and ecological proteomics.

SPECIFIC REQUIREMENTS

Requirements for Admission to Graduate Studies for the Degree of Master of Science

An undergraduate major in biology or its equivalent. Satisfactory scores on the Graduate Record Examination, general (aptitude) section. Acceptability to the faculty member with whom the candidate wishes to do thesis research.

Minimum Degree Requirements

Biology Graduate Colloquia, four credits; eleven to eighteen additional credits in biology and related fields; thesis research (eight to fifteen credits) and successful defense of thesis. Each candidate must participate in the teaching of at least one undergraduate course.

Comprehensive Examination

The comprehensive examination must be taken by the end of the second year. The examination will cover broad knowledge of the student’s discipline. The details and format of the examination and its form (written or oral or both) are decided upon by the Studies Committee and will be discussed with the student well in advance of the exam.

Requirements for Advancement to Candidacy for the Degree of Master of Science

Satisfactory completion of a qualifying examination.