BIOLOGY M.S.T.

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; multispecies 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 in Teaching

A bachelor’s degree from an accredited institution and certification as a teacher of biology or an associated field. At least three years of secondary school teaching. Satisfactory scores on the Graduate Record Examination, general (aptitude) section.

Minimum Degree Requirements

Thirty credits of course work to include a selection of courses in the Departments of Plant Biology and Biology which will broaden and balance the undergraduate work in biology. Courses in four of the five following areas: anatomy; neurobiology; morphology and systematics; evolution; genetics; developmental biology; and environmental biology. Up to twelve credits of 100-level courses may be used for the above requirements where approved by the advisor and the dean. Appropriate courses in related science departments chosen with the graduate studies committee may be used to complete the required thirty credits. No thesis is required; however, each degree recipient must complete a written examination.

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 in Teaching

Satisfactory completion of a qualifying examination.