

## Master of Science in Biological Sciences

Wichita State University's Master of Science program offered by the Department of Biological Sciences provides an advanced education with either a research thesis or non-thesis option. A variety of specializations in the broad areas of ecology, microbiology, molecular, cell, and environmental biology are available. All incoming students are assigned to a temporary graduate advisor, after which they choose a permanent graduate advisor and committee. Advisors work with students to develop a program of studies that meets the student's educational goals.

### Admission Requirements

Completed application forms and two official transcripts of all previous academic work must be submitted to the Graduate School at least four weeks before registration. Admission as a full standing student requires: (1) the completion of 24 semester hours in biological sciences and 15 semester hours in chemistry; (2) an overall grade point average of at least 2.750 (4.000 scale) for the most recent 60 semester hours completed; (3) a grade point average of at least 3.000 (4.000 scale) for all undergraduate biological sciences courses; (4) three letters of reference from science faculty; and (5) acceptable IELTS or TOEFL scores if English is not the student's first language. Students who do not meet these requirements but who wish to begin graduate course work may qualify for conditional acceptance into a nondegree category. The application fee for U.S. citizens and Permanent Residents is \$50; for International applicants requiring a visa, \$65.

### Degree Requirements

All students are required to attend the departmental seminar course (BIOL 797) each semester and must give at least two oral presentations.

Candidates who choose to select the *research thesis* must complete 30 credit hours of graduate work, including the presentation and oral defense of a thesis based on original research.

A *non-thesis* option is offered for students that cannot commit to a thesis project centered on laboratory research. Candidates selecting the non-

thesis option must complete 33 credit hours of graduate work and successfully defend a library research project or the results of a cooperative education or internship experience.

### Research Facilities

The department is housed primarily in Hubbard Hall with large, modern research laboratories. Core laboratories have been established for protein chemistry, molecular biology, and digital microscopy. Shared facilities include an accredited animal care suite with a surgical theater and micro-CT scanner, a climate-controlled greenhouse, walk-in environmental chambers, cell culture suites, and herbarium and vertebrate study collections. Major research instrumentation is available for molecular biology and genetic studies, carbohydrate analyses, protein biochemistry, confocal and fluorescence microscopy, and analytical separations.

Relevant campus facilities include scanning electron microscopy, GC/MS, X-ray diffraction spectroscopy, atomic force microscopy, human performance laboratories, biomechanical testing equipment, and the Ablah library that houses more than 20,000 titles in biological sciences.

The department manages the WSU Biological Field Station, which consist of the Ninnescah, Gerber, and Sellers Reserves. These reserves contain prairie, riparian woodland, and wetland habitats that provide excellent opportunities for field research. A modern research and teaching facility is located on the Ninnescah reserve.

### Financial Aid

A number of graduate teaching assistantships, awarded on a competitive basis, are available to qualified students. Recipients are required to teach eight to ten hours per week, primarily in laboratories, for which they receive a stipend for the academic year and are eligible for a tuition waiver.

Non-resident graduate students who are awarded graduate teaching assistantships are assessed tuition at the Kansas resident rate. A limited number of graduate research fellowships are awarded annually, but recipients are not eligible for a tuition waiver.

## Faculty

**James Beck**, Research Assistant Professor, PhD, Washington University, 2007. Plant systematics: species delimitation/discovery, phylogeny reconstruction, cytology, rare species biology, phylogeography

**George Bousfield**, Professor, PhD, Indiana University, 1981. Reproductive endocrinology: glycoprotein hormones, FSH glycoforms and aging, carbohydrate biochemistry

**Donald A. Distler**, Associate Professor, PhD, University of Kansas, 1966. Aquatic Biology, ecology: invertebrate distributions and life histories in river basins

**William J. Hendry III**, Professor and Chair, PhD, Worcester Foundation for Experimental Biology/Clark University, 1982. Endocrine disruption; hormone-dependent carcinogenesis; epigenetics (DNA methylation, microRNA expression)

**Gregory Houseman**, Assistant Professor, PhD, Michigan State University, 2004. Plant community ecology: restoration of ecological communities, community assembly, ecology of invasive plants

**Mary Liz Jameson**, Associate Professor, PhD, University of Kansas, 1997. Insect systematics: morphological and molecular phylogenetics, biogeography, bioinformatics integrating genomics and biodiversity data, insect-host plant interactions

**Jeffrey V. May**, Research Associate Professor, Women's Research Institute; PhD, University of Rhode Island, 1979. Reproductive endocrinology and cell biology: intraovarian regulation of mammalian folliculogenesis, autocrine/paracrine regulation of ovarian function by polypeptide growth factors

**Christopher M. Rogers**, Professor, PhD, Indiana University, 1988. Ecology, demography and conservation of birds; optimality theory and adaptive body mass/fattening strategies

**F. Leland Russell**, Associate Professor and Graduate Coordinator, PhD, University of Texas, 1999. Plant population ecology; Plant-animal interactions; herbivores' effects on plant populations; savanna dynamics.

**Mark A. Schneegurt**, Professor; PhD, Brown University, 1989. Applied and environmental microbiology; microbial ecology; hypersaline systems; astrobiology; alternative energy; natural products discovery; environmental science

**Bin Shuai**, Associate Professor; PhD, University of California Riverside, 2003. Molecular genetics of plant development; molecular mechanisms of host-pathogen interactions

**Karen L. Brown Sullivan**, Associate Professor, PhD, University of Georgia, 1982. Ecology and population genetics: genetic, behavioral, and ecological interactions involved in the regulation of animal populations; effects of environmental stress on genetic variation of populations

**Paul Wooley**, Research Professor, PhD, University of London, 1980. Biomaterials in orthopaedic research: immunological response to implanted biomaterials, biocompatibility of materials including silicones, polymers and viscosupplementation agents

**Shang-You Yang**, Research Associate Professor, PhD, Thornhill University, 2001. Orthopaedic research including biomaterials and biocompatibility: tissue engineering; drug delivery and gene therapy; and cancer interventions

**Li Yao**, Assistant Professor, PhD, University of Aberdeen (UK), 2006. Neurobiology: electric fields guided brain neuron migration, spinal cord repair and regeneration, peripheral neuron repair and regeneration, tissue engineering

## For More Information

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## Apply On-Line

<http://webs.wichita.edu/?u=apply&p=/OnlineApplicationGateway>