Biology, the study of living things, is an exciting and dynamic field that offers many areas of focus. Graduate studies in the biological sciences provide opportunities to study viruses, bacteria, protists, fungi, plants, and animals and to investigate the biochemical, physiological, anatomical, behavioral, or ecological processes that make each organism unique. Specific areas of faculty research interests include parasitology, systematics of insects and plants, vegetation mapping, animal, plant and bacterial physiology, cellular signal transduction, genetics of longevity, micro and macro evolution, vertebrate reproduction, animal mating systems, entomology, behavioral ecology, and ecology of aquatic and terrestrial ecosystems.

The Department of Biological Sciences is located in the Lee Drain Building, which houses facilities including teaching and research laboratories, the Warner Herbarium, Sam Houston State Vertebrate Museum, Texas Bird Sound Library, an animal rearing facility, greenhouse, scanning electron microscope, and modern molecular biology research equipment. The Department also operates the Center for Biological Field Studies, a 250-acre field station within five miles of campus that is dedicated to research and teaching.

The Department of Biological Sciences offers MA and MS degrees in Biology and is a contributing partner to the interdisciplinary MS degree in Forensic Science along with the College of Criminal Justice and Department of Chemistry. The MS degree in Biology allows for specialization in one of several areas of Biology and is designed for those students planning to pursue careers in research or environmental biology with governmental agencies and industry. The MS degree in Biology is also appropriate for students planning to continue their training in Ph.D. programs at other institutions or in professional schools. The MS degree in Forensic Science is a degree that prepares the student to work for or consult with various agencies in the criminal justice system.

The MA degree in Biology is primarily designed for secondary education teachers who wish to increase their competency in the field of biology. This degree is not recommended for students who plan to pursue doctoral studies. Students pursuing the Master of Education degree may specialize in Biology as a teaching field.

**Admission Requirements**

Students seeking admission to the graduate program in the Biological Sciences must submit the Graduate Studies Application for Admission with the one-time application fee to the Office of Graduate Studies, official transcripts of all college-level work (including the transcript that shows the date the undergraduate degree was conferred), and official GRE scores. Two letters of recommendation from faculty in the undergraduate major field of study at the student's undergraduate degree-granting institution are required with the application for admission.

To be granted regular admission to the graduate program, applicants must have an undergraduate degree in biology or a related field. Applicants having an undergraduate degree in a discipline other than biology must successfully complete the equivalent of an undergraduate minor in the biological sciences before being considered for regular admission. Regular admission to the graduate program is also based on a combination of GRE scores and undergraduate GPA. For a final admissions decision, GRE scores and undergraduate GPA do not constitute the primary criteria to end consideration of an applicant. A holistic review of each student's application file will be completed on a competitive basis. More detailed information on competitive GRE scores and undergraduate GPA can be found on the department's website at: [www.shsu.edu/~bio_www/](http://www.shsu.edu/~bio_www/).

**Master of Arts, 38 Semester Hours with a Minor, 32 Semester Hours without a Minor.** This degree program is well suited for many training objectives, but it is most often recommended for secondary teachers who wish to prepare in two fields. A student may opt to include a minor. This plan requires 32 semester hours (38 with a minor field) of graduate credit. No more than two 400-level courses in the major field and one 400-level course in the minor field may be applied toward the degree. If opting for the MA with a minor, 26 hours are taken in Biology, including BIO 520, and 12 semester hours of graduate credit are required in a minor field that logically supports the major. Completion of a literature-based review paper is required.

**Master of Science, 32 Semester Hours with Thesis.** This degree program is designed for those students
who select all of their courses from those offered in the Biology program unless otherwise authorized by the Graduate Advisor and the faculty research advisor. No more than two 400-level courses in the major field and one 400-level course in the minor field may be applied toward the degree. Students with this degree are prepared for positions as professional biologists in the public or private sector, teaching at the college level or to begin doctoral programs in the biological sciences. This is a research-oriented degree requiring a thesis. This plan requires 32 semester hours of graduate credit, at least 26 of which must be in courses numbered 500 or above. Six hours of thesis (3 hours each of BIO 698 and BIO 699) and BIO 520 (2 hours) are counted toward this 32-hour degree program.

Master of Science, 38 Semester Hours with a Minor and a Thesis. Students with this degree are prepared for positions as professional biologists in the public or private sector, teaching at the college level or to begin doctoral programs in the biological sciences. This is a research-oriented degree requiring a thesis. This plan requires 38 semester hours of graduate credit. No more than two 400-level courses in the major field and one 400-level course in the minor field may be applied toward the degree. Included in the 38 hours are BIO 520 (2 hours), BIO 698 and BIO 699 (6 hours of thesis), 18 hours of Biology courses and a minor of 12 hours in a field that supports the major. The minor must be approved by the minor-granting program.

Master of Education in Secondary Education. This degree plan is designed primarily for the secondary teacher. All such degrees originate in the College of Education in the Department of Curriculum and Instruction and require the completion of a minimum of 36 hours of graduate credit, 30 of which must be in courses numbered 500 or above. Twelve to 24 hours of professional education coursework are required (12 hours minimum for minor and 6 hours minimum for a second minor). A comprehensive examination is required. Students may elect from 12 to 24 semester hours in biology in this 36-semester-hour program. A thesis is not required. Course requirements are adjusted to meet individual student needs by the M.Ed. program and the Graduate Advisor for Biology.

Other Scholarly Requirements

In order to receive the MA or MS degree, all graduate students are required to pass a comprehensive examination based on their coursework and general biological concepts. The nature of this examination, which may be written and/or oral, will be determined by the faculty. Students must be enrolled the semester they take the comprehensive examination. For MA degrees, a literature-based review paper is prepared in consultation with the student's faculty advisor. Students must defend the literature-based review before the student's advisory committee, and present it to the faculty in seminar format. For MS degrees, students complete a thesis research project under supervision of the student's thesis advisor, and present the thesis to the faculty in seminar format. The thesis must also be defended before the student's thesis committee. Once enrolled in BIO 699, a student must be continually enrolled until graduation.

Graduate Student Support

Competitive teaching and research assistantships are available to graduate students in Biology through the Department of Biological Sciences and individual faculty members. In addition, the department offers entrance scholarships to qualified incoming students and summer scholarships to support research activities. University scholarships are also available. The department also offers competitive research grants to support research activities and travel to scientific meetings. For details and application materials, contact the Graduate Committee Chair, Department of Biological Sciences, Box 2116, Sam Houston State University, Huntsville, TX 77341-2116; (936) 294-1540; email bio_www@shsu.edu. Details are also available on the Department's website at: http://www.shsu.edu/~bio_www/.

Senior Courses Open to Graduate Students

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BIO 430</td>
<td>Vertebrate Natural History (Credit 3)</td>
</tr>
<tr>
<td>BIO 431</td>
<td>General Entomology (Credit 3)</td>
</tr>
<tr>
<td>BIO 432</td>
<td>Environmental Toxicology (Credit 3)</td>
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<tr>
<td>BIO 433</td>
<td>Aquatic Biology (Credit 3)</td>
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<td>BIO</td>
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http://www.shsu.edu/gradcat/bio.html 6/30/2008
A maximum of six hours of 400-level courses may be taken toward the completion of the master's degree. Course requirements in 400-level courses will be appropriately modified for graduate credit.

Master of Science in Forensic Science. This interdisciplinary degree is designed to produce graduate level forensic scientists. Formal graduate coursework comes from the Departments of Chemistry, Biological Sciences and the College of Criminal Justice. Summer practicums and internships provide experiences in the collection, preservation, analysis and presentation of forensic evidence. The Master of Science in Forensic Science program requires completion of 42 graduate semester hours and can be completed in two years. Coursework focuses on the collection, preservation, analysis, and presentation of forensic evidence. Graduates of this scientist-practitioner program will be prepared to consult with various agencies within the criminal justice system. In order to receive a MS degree in Forensic Science, all graduate students are required to pass a comprehensive examination. This unique program is the first of its kind in Texas and one of only a handful of such programs in North America.

The competitive admissions process is based on a holistic approach taking all of the required materials into consideration. The desired profile includes an average GRE score of at least 1100 and an undergraduate GPA of at least 3.0. Applicants with unique qualifications who do not meet all of the foregoing qualifications may be accepted into the program on probationary status at the discretion of the admissions committee and appropriate academic dean. The program will encourage diversity related to gender and ethnicity.

The Program of Study**

Required courses:

- BIO 474 Biostatistics
- BIO 534 Electron Microscopy
- BIO 595 Special topics: Forensic Analysis of Biological Evidence
- CHM 568 Analytical Spectroscopy
- CHM 585 Selected Topics in Advanced Chemistry