

# Biological Sciences

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Graduate study leading to the Master of Science and Doctor of Philosophy degrees is offered in Biological Sciences. Major areas of emphasis include molecular, developmental, cellular and organismal biology. An emphasis in biological sciences will be interdisciplinary, drawing from courses in and out of the department relating to a single unifying field, such as cell biology, evolutionary biology/ecology, or microbiology. Graduate research and teaching assistantships are available.

Highly qualified undergraduates at Mississippi State are encouraged to consider applying to the combined B.S./M.S. degree program. This program permits concurrent enrollment in the B.S. and M.S. degrees in Biological Sciences during the student's final semester of undergraduate studies with enrollment in up to 9 hours of graduate courses, for which undergraduate credit is also awarded. Students would need to consult with potential graduate advisors to ensure graduate credit could be applied to a program of study for the M.S. degree. Application to this program may be made as early as the end of the sophomore year (i.e., after completion of 60 or more hours of graded undergraduate courses). This option is only available for students pursuing a thesis-based Master of Science degree in Biological Sciences.

A Master of Science degree in General Biology (GBIO) is offered through distance learning. This degree program is designed for practicing K-12 teachers who need graduate-level comprehensive instruction in biology. This web-based degree program culminates with a capstone hands-on learning experience in lab and field settings.

## Admission Criteria

Requirements for entrance into the M.S. and Ph.D. programs in the Department of Biological Sciences are

1. a GPA of 2.75 on a 4.00 system for all undergraduate work and a GPA of 3.00 for all coursework in the biological sciences;
2. three letters of recommendation from individuals familiar with the applicant's academic performance;
3. submission of scores from the Graduate Record Examination (GRE) General Test;
4. a statement of professional interests and goals from the applicant.

Requirements for admission to the Master of Science in General Biology include

1. a minimum GPA of 2.75 on a 4.00 system on the last 60 hours of the undergraduate degree and a GPA of 3.00 for all coursework in the biological sciences;
2. three letters of recommendation from individuals familiar with the applicant's academic performance;
3. a statement of purpose, professional goals and interests, and work experience.

Requirements for entrance into the combined B.S./M.S. program in the Department of Biological Sciences are

1. a GPA of 3.50 or higher on a 4.00 system for all undergraduate work (no fewer than 60 hours)
2. submission of a standard application for graduate studies in the Department of Biological Sciences, along with application fee;
3. three letters of recommendation from individuals familiar with the applicant's academic performance;
4. submission of scores from the Graduate Record Examination (GRE) General Test prior to enrolling in graduate courses; and
5. a statement of professional interests and goals from the applicant, including specification of one or more potential major professors.

## Contingent Admission

In some cases, a student can be accepted pending a particular condition, such as completion of a B.S. or M.S. degree or other conditions such as determined by the faculty and/or the Office of the Graduate School. Graduate students accepted on a contingent basis may receive an assistantship.

## Provisional Admission

In rare cases, if a student does not meet the minimum admission requirements, an individual faculty member may sponsor the student, if the student's record is close to the minimum requirements and he/she has exceptional academic promise. In such a case, the student will be admitted provisionally as recommended by the graduate committee. The provisional student must earn at least a 3.00 GPA while carrying a full load (6 hours summer/9 hours fall or spring, exclusive of special problems and thesis research hours) of graduate-level coursework during the first semester (if the student is a full-time student). Courses with an S grade, transfer credits, or credits earned while in Unclassified status cannot be used to satisfy this requirement. The

graduate committee will review the student's progress toward the end of his/her first semester and decide whether regular admission or dismissal should be recommended; this review will also involve the student's advisory committee, if it has been formed. A student will not be retained on provisional status for more than two semesters. While in the provisional status, a student is not eligible to hold a graduate assistantship. This option is not available for students pursuing the combined B.S./M.S. program.

## Academic Performance

The graduate student must maintain an average of B (3.00) or higher for all courses after admission to the program. Only grades of C or higher will be accepted for credit. One course of the approved graduate program can be repeated; the two grades will be averaged. All grades earned will be employed in overall GPA calculations. Failure to demonstrate satisfactory progress toward completion of degree requirements, including earning two or more Cs or earning a grade of D or F, may be considered by the Graduate Committee in consultation with the student's advisory committee to be sufficient cause for dismissal from the graduate program. If the student's GPA falls below 3.00, he/she will have a one-semester grace period in which to retain a teaching assistantship. By the end of this grace period, the student must have achieved an overall 3.00 GPA. This 3.00 GPA must be maintained for the duration of the graduate program, or the student will be terminated from the graduate program. The student may retain a teaching assistantship during this probationary semester. During the probationary semester, the student must be enrolled in approved program requirements or, if the program has not yet been approved, in courses appropriate for the program.

## Master of Science in Biological Sciences

BIO 8011	Seminar I <sup>1</sup>	1
BIO 8021	Seminar II <sup>1</sup>	1
ST 8114	Statistical Methods <sup>2</sup>	4
Additional graduate-level coursework		18
BIO 8000	Thesis Research/ Thesis in Biological Sciences	6
Total Hours		30

<sup>1</sup> Only one hour of BIO 8011 and one hour of BIO 8021 will be credited towards the degree.

<sup>2</sup> Or appropriate substitute, as approved by the advisory committee.

An exit seminar, a final comprehensive examination and a thesis are required. At least 12 hours of coursework must be 8000-level.

## Doctor of Philosophy in Biological Sciences

BIO 8011	Seminar I <sup>1</sup>	1
BIO 8021	Seminar II <sup>1</sup>	1
ST 8114	Statistical Methods <sup>2</sup>	4
Graduate-level coursework to be determined by student's graduate committee		
BIO 9000	Dissertation Research/ Dissertation in Biological Sciences	20

<sup>1</sup> Only one hour of BIO 8011 and one hour of BIO 8021 will be credited towards the degree.

<sup>2</sup> Or appropriate substitute, as approved by the advisory committee.

An exit seminar, a comprehensive examination, a dissertation, and a dissertation defense are required.

The Doctor of Philosophy course requirements are determined by the student's advisory committee. Mandatory academic performance is the same as specified by Graduate School policy.

## Combined B.S./M.S. Program

A student accepted into the combined B.S./M.S. program is allowed to enroll in graduate courses in the student's final undergraduate semester. The student and advisor may select up to 9 hours that will satisfy both undergraduate and graduate requirements. These courses may be split level (i.e., split 4000-6000 level) or 8000 level classes. The student should take the courses for graduate credit (i.e., 6000 level or higher). To register for graduate courses, the student must first submit to the Office of the Graduate School a completed Undergraduate Request to Enroll in Graduate Courses(s) form ([http://www.grad.msstate.edu/forms/pdf\\_forms/undergraduate\\_request\\_to\\_enroll\\_in\\_graduate\\_course.pdf](http://www.grad.msstate.edu/forms/pdf_forms/undergraduate_request_to_enroll_in_graduate_course.pdf)). The combination of undergraduate and graduate credit hours may not exceed 13 hours within a semester. After successfully completing the graduate-level classes, the student and undergraduate advisor will complete a request to receive undergraduate credit for the course. After receiving the request, the Registrar will grant credit for the undergraduate course and give the same grade as received for the graduate course. For the case of a split-level class, the transcript will show credit for both the 4000 and 6000 levels on the transcript. In the case of an 8000 level class, an undergraduate course of the same title will be entered on the transcript to allow dual credit.

Students are permitted to opt out of the combined program at any time, at which point they can complete only the undergraduate portion of the program. No additional dual counting of courses will occur after the student opts out of the combined program.

Students will receive the Bachelor's degree once the requirements for the Bachelor's degree are met. Students will be required to complete all of the requirements for both the Bachelor's and Master's degrees in order to receive both degrees, and those requirements will be identical to the requirements for students enrolled in traditional B.S. and M.S. programs. Students will be classified as undergraduates until they fulfill all the requirements for the undergraduate degree. At that time, they will be classified as graduate students and will be subject to all the guidelines pertaining to the M.S. in Biological Sciences degree. Students admitted to this program should read and understand guidelines in the Department of Biological Sciences Graduate Student Handbook before registering for any courses for graduate credit.

## Master of Science in General Biology

Requirements for the Master of Science in General Biology (GBIO) include a 33-hour program of coursework and a written comprehensive examination administered at the beginning of the final term. Each student will be required to complete Capstone in Modern Biology, an intensive face-to-face course of planned, hands-on lab-and field-based activities.

For additional information, write to the Graduate Coordinator listed at the beginning of this page.

BIO 6013	Genetics and Molecular Biology	3
BIO 6023	Principles of Evolutionary Biology	3
BIO 6033	Fundamentals of Biotechnology	3
BIO 6043	Developmental and Reproductive Biology	3
BIO 8023	Modern Microbiology	3
BIO 8033	Advanced Cell Biology	3
BIO 8043	Ecology and the Environment	3
BIO 8053	Comprehensive Study of Animals	3
BIO 8063	Comprehensive Study of Plants	3
BIO 8093	Experimental Biology and Biostatistics	3
BIO 8183	Capstone in Modern Biology	3
Total Hours		33