BIOLOGY, M.S.

Biology students at Saint Louis University have access to excellent facilities on campus and at the University's Reis Biological Station. Collaborations with neighboring institutions such as Washington University in St. Louis, the University of Missouri St. Louis, the Missouri Botanical Garden, the Saint Louis Zoo and the Danforth Plant Science Center further expand possibilities for research and learning.

Students applying to the M.S. program may do so for reasons similar to those applying to the M.A. program; however, they also desire to gain experience in laboratory research, including experimental design, interpretation of data and scientific writing. The M.S. degree requires a formal research project and thesis, and is excellent preparation for continued graduate studies at the doctoral level or for employment at environmental, industrial or research companies. The program requires at least 30 credits, six credits of which may be thesis research.

Curriculum Overview
The M.S. in Biology requires at least 30 post-baccalaureate credits, six credits of which will be thesis research.

Careers
Past students have gone on to careers as research scientists, teachers, university faculty, and in various capacities in pharmaceutical companies and government agencies.

Admission Requirements
Applicants should possess adequate undergraduate preparation in biology with a minimum 3.0 GPA in science and math courses.

Suggested courses include: biology (a minimum of 18 upper-division credits); chemistry (a minimum of eight upper-division credits including two semesters of organic chemistry or one semester of organic chemistry and another of biochemistry); physics (two semesters); mathematics (such as a course in calculus). A formal minor is not permitted.

For students interested in ecology, evolution or systematics, additional coursework in some of the following areas is also recommended: genetics, general ecology, evolution, introductory statistics, general botany and a taxonomically oriented course. For students interested in cell or molecular biology, additional coursework in some of the following areas is recommended: genetics, biochemistry, cell biology, physiology, molecular biology, microbiology or immunology.

Application Requirements
- Application form and fee
- Three letters of recommendation
- GRE or MCAT
- Transcript(s)
- Résumé
- Goal statement
- Interview (desired)

Requirements for International Students
All admission policies and requirements for domestic students apply to international students along with the following:

- Demonstrate English Language Proficiency (http://catalog.slu.edu/previous-catalogs/2018-2019/academic-policies/office-admission/undergraduate/english-language-proficiency)
- Proof of financial support must include:
  - A letter of financial support from the person(s) or sponsoring agency funding the time at Saint Louis University
  - A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of study at the University
- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include the courses taken and/or lectures attended, practical laboratory work, the maximum and minimum grades attainable, the grades earned or the results of all end-of-term examinations, and any honors or degrees received. WES and ECE transcripts are accepted.

Assistantship Application Deadline
Students who want to be considered for an assistantship must submit their application by Dec. 15.

Review Process
Faculty committee members examine each applicant's materials and make recommendations. Consideration is given for matching applicant interests with faculty research areas.

Applicants should outline their research goals in their professional goals statement and should identify and correspond with faculty members whose area of research matches their interests early in the application process.

Scholarships, Assistantships and Financial Aid
For priority consideration for graduate assistantship, applicants should complete their applications by the program admission deadlines listed. Fellowships and assistantships provide a stipend and may include health insurance and a tuition scholarship for the duration of the award.

For more information, visit the student financial services office online at http://www.slu.edu/financial-aid.

Learning Outcomes
1. Graduates will be able to critically analyze primary literature articles by evaluating the scientific contributions of peer-reviewed publications in biology.
2. Graduates will be able to effectively communicate scientific ideas.
3. Graduates will be able to demonstrate professional integrity.
4. Graduates will be able to use appropriate instrumentation and analytical methods to collect data.
5. Graduates will be able to draw statistically valid conclusions from quantitative data.

Requirements
The Master of Science in Biology degree requires a minimum of 30 credits, including 24 credits of structured coursework and six credits of thesis research. Courses may be chosen from upper-level electives within the Department of Biology or related departments; coursework may be tailored to the research interests in consultation with advisory committees of students.
The following requirements govern which courses may be counted toward a degree:

- At least 20 credits of structured courses (does not include BIOL 5970 Research Topics (1-3 cr) or BIOL 5980 Graduate Reading Course (1-3 cr) courses)
- At least 14 credits (exclusive of thesis) must be 5000- and 6000-level courses
- At least 12 credits (exclusive of thesis) of the total program must be from the biology department
- No more than four credits of BIOL 5970 Research Topics (1-3 cr) and/or BIOL 5980 Graduate Reading Course (1-3 cr)
- At least six hours of thesis research BIOL 5990 Thesis Research (0-6 cr)

Students must be enrolled in a course (even if it is for zero hours) every fall and spring semester to maintain standing in the program; students on 11-month assistantships must also enroll in the summer.

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<tr>
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<th>Credits</th>
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<td>Research Colloquium (taken for 0 credits in the student's first year, 1 hr in the student's second year)</td>
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<td>Scientific Communication Practicum</td>
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<td>Department Seminar (must be taken each semester enrolled)</td>
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<td>Graduate Seminar/CMR (at least one semester)</td>
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<td>BIOL 5840</td>
<td>Graduate Seminar in Ecology, Evolution and Systematics (can be taken for 1-2 credits)</td>
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<tr>
<td>BIOL 5990</td>
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**Elective Courses**

*Elective Courses (selected in consultation with the student's mentoring 21-20 committee) (p. 2)*

Total Credits 30

**Elective Courses**

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<td>Pollination Biology</td>
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<td>Aquatic Ecology</td>
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<td>Biology of Amphibians and Reptiles</td>
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<td>BIOL 5760</td>
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### BIOL 5780
Molecular Phylogenetic Analysis 3

### BIOL 5820
Graduate Seminar/CMR 1-2

### BIOL 5840
Graduate Seminar in Ecology, Evolution and Systematics 2

### BIOL 6040
Current Topics in Developmental Biology 3

### BIOL 6150
Neural Basis of Behavior 3

### BIOL 6300
Special Studies: Comparative Physiology 1-4

Total Credits 202-233

### Continuation Standards
Students must maintain a cumulative grade point average (GPA) of 3.00 in all graduate/professional courses.

### Roadmap
Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

### General Schedule

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>BIOL 5780</td>
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<td>BIOL 5840</td>
<td>Graduate Seminar in Ecology, Evolution and Systematics</td>
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<td>BIOL 6040</td>
<td>Current Topics in Developmental Biology</td>
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<td>Neural Basis of Behavior</td>
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<td>BIOL 6300</td>
<td>Special Studies: Comparative Physiology</td>
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Total Credits 202-233

### Spring
Completion of written Thesis and Presentation of Thesis Research

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<td>Department Seminar</td>
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<td>Thesis Research</td>
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<td>BIOL 5820 or BIOL 5840</td>
<td>Graduate Seminar/CMR or Graduate Seminar in Ecology, Evolution and Systematics</td>
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Credits 6-5

Total Credits 30

1 A maximum of 6 hours of 4000-level courses can counted toward the MS; please see detailed requirements and sample schedules in Program Notes below.

### Schedule for student whose focus is Cell/Molecular Biology

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<thead>
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<td>BIOL 5050</td>
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<td>Advanced Molecular Biology</td>
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<td>BIOL 5800</td>
<td>Research Colloquium</td>
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Credits 6

### Spring

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<td>Scientific Communication Practicum</td>
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Credits 7

### Summer

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<td>Graduate Reading Course</td>
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Credits 3

### Year Two

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<td>Advanced Microbiology</td>
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Credits 8

### Spring

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Credits 8

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Credits 6

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Credits 3

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Credits 8

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### Schedule for student whose focus is Ecology/Evolutionary Biology

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