BIOLOGY, M.S.

Saint Louis University's Master of Science in Biology offers students the chance to gain experience in laboratory research, including experimental design, interpretation of data and scientific writing.

Program Highlights

- SLU's Master of Science in Biology 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. It can also lay the groundwork for careers in academic, private or government sectors.
- Biology students at Saint Louis University have access to outstanding facilities on campus and at the University's Reis Biological Station (https://www.slu.edu/arts-and-sciences/biology/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 biological research and learning.
- Students interested in the M.S. program in biology may also consider SLU's M.A. in Biology program (https://catalog.slu.edu/colleges-schools/arts-sciences/biology/biology-ma/).

Curriculum Overview

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

Graduate Handbook (https://www.slu.edu/arts-and-sciences/biology/pdfs/biology-graduate-handbook-2021-2022.pdf)

Careers

Past students in SLU's biology master's program have gone on to medical school or further study in doctoral programs and careers as research scientists, teachers, college 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
- Transcript(s)
- Résumé
- Goal statement
- Interview (desired)

Requirements for International Students

All admission policies and requirements for domestic students apply to international students. International students must also meet the following additional requirements:

- Demonstrate English Language Proficiency (https://catalog.slu.edu/academic-policies/office-admission/undergraduate/english-language-proficiency/)
- Financial documents are required to complete an application for admission and be reviewed for admission and merit scholarships.
- Proof of financial support that must include:
  - A letter of financial support from the person(s) or sponsoring agency funding the student's 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 the student's study at the University
- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include:
  - 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
  - Any honors or degrees received.

WES and ECE transcripts are accepted.

Assistantship Application Deadline

Students who want to be considered for an assistantship should submit their application by Dec. 15. Applications submitted after this deadline will be considered if assistantships are available.

Review Process

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

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

Tuition

Tuition	Cost Per Credit
Graduate Tuition	$1,310

Additional charges may apply. Other resources are listed below:

Net Price Calculator (https://www.slu.edu/financial-aid/tuition-and-costs/calculator.php)

Information on Tuition and Fees (https://catalog.slu.edu/academic-policies/student-financial-services/tuition/)

Miscellaneous Fees (https://catalog.slu.edu/academic-policies/student-financial-services/fees/)

Information on Summer Tuition (https://catalog.slu.edu/academic-policies/student-financial-services/tuition-summer/)

Scholarships, Assistantships and Financial Aid

For priority consideration for a graduate assistantship, apply 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.

Explore Scholarships and Financial Aid Options (https://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 SLU's Department of Biology (https://www.slu.edu/arts-and-sciences/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 18 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 six credits of BIOL 5970 Research Topics (1-3 cr) and/or BIOL 5980 Graduate Reading Course (1-3 cr).
- Six credits of thesis research BIOL 5990 Thesis Research (0-6 cr).

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

Code	Title	Credits
Required Courses		
BIOL 5800	Research Colloquium (taken twice for 1 credit hour each time)	0-1
BIOL 5860	Scientific Communication	1
BIOL 5990	Thesis Research (6 credits distributed over multiple semesters)	6
Seminars		
BIOL 5810	Department Seminar (must be taken each semester enrolled)	0
Take two semesters of the following:		
BIOL 5820	Graduate Seminar in Cell and Molecular Regulation (two semesters total; may be taken for 1-2 credits)	1-2
or BIOL 5840	Graduate Seminar in Ecology, Evolution and Systematics	
Elective Courses		**17-19**
Elective Courses (selected in consultation with the student's mentoring committee) *(p. 2)*		
Total Credits		**30**

Elective Courses

Electives can be selected from any 4000-level or higher courses in biology or related areas (subject to limits on 4000-level, 5970, and 5980 credit hours). Among the courses that can be taken as electives are:

Code	Title	Credits
BIOL 4090	Plant Ecology	3
BIOL 4100	Natural History of Vertebrates	4
BIOL 4120	Field Botany	5
BIOL 4130	Field Mammalogy	5
BIOL 4140	Field Ornithology	5
BIOL 4160	Microbial Ecology and Molecular Evolution	4
BIOL 4200	Aquatic Ecology	4
BIOL 4260	Biology of Amphibians and Reptiles	4
BIOL 4280	Biology of Fishes	4
BIOL 4320	Cave Biology	4
BIOL 4330	Spring Flora of the Ozarks	4
BIOL 4360	Animal Behavior	3
BIOL 4370	Animal Behavior Lab	1
BIOL 4410	Comparative Animal Physiology	3
BIOL 4440	Vertebrate Histology: Structure and Function of Tissues	4
BIOL 4480	Conservation Biology	3
BIOL 4510	Behavioral Endocrinology	3
BIOL 4540	Human Systemic Physiology	3
BIOL 4640	General Microbiology	3
BIOL 4650	General Microbiology Laboratory	2
BIOL 4720	Cancer Biology	3
BIOL 4910	Internship in Conservation	1-6
BIOL 4912	Internship in Plant Science	1-3
BIOL 5000	Problems in Vertebrate Morphology	2-5
BIOL 5030	Genomics	3
BIOL 5050	Molecular Techniques Lab	2
BIOL 5070	Advanced Biological Chemistry	3
BIOL 5080	Advanced Cell Biology	3
BIOL 5090	Biometry	4
BIOL 5190	Geographic Information Systems in Biology	3
BIOL 5350	Current Topics in Cell Biology	2
BIOL 5400	Problems in Genetics	1-4

BIOL 5480	Conservation Biology	3
BIOL 5550	Advanced Ecology	3
BIOL 5560	Advanced Evolution	3
BIOL 5610	Principles of Develop Biology	3
BIOL 5630	Concepts of Immunobiology	3
BIOL 5640	Advanced Microbiology	3
BIOL 5670	Advanced Population Biology	3
BIOL 5700	Advanced Molecular Biology	3
BIOL 5780	Molecular Phylogenetic Analysis	3
BIOL 5820	Graduate Seminar in Cell and Molecular Regulation	1-2
BIOL 5840	Graduate Seminar in Ecology, Evolution and Systematics	2
BIOL 6150	Neural Basis of Behavior	3

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

Course	Title	Credits
Year One		
Fall		
4000/5000 level electives [1]		5-6
BIOL 5810	Department Seminar	0
BIOL 5800	Research Colloquium	1
BIOL 5990	Thesis Research	1
	Credits	**7-8**
Spring		
4000/5000 level electives [1]		3
BIOL 5810	Department Seminar	0
BIOL 5820 or BIOL 5840	Graduate Seminar in Cell and Molecular Regulation or Graduate Seminar in Ecology, Evolution and Systematics	2
BIOL 5860	Scientific Communication	1
BIOL 5990	Thesis Research	1
	Credits	**7**
Summer		
BIOL 5990	Thesis Research	2
	Credits	**2**
Year Two		
Fall		
4000/5000 level electives [1]		6
BIOL 5810	Department Seminar	0
BIOL 5800	Research Colloquium	1
BIOL 5990	Thesis Research	1
	Credits	**8**
Spring		
Completion of written Thesis and Presentation of Thesis Research		
4000/5000 level electives [1]		3
BIOL 5810	Department Seminar	0
BIOL 5990	Thesis Research	1
BIOL 5820 or BIOL 5840	Graduate Seminar in Cell and Molecular Regulation or Graduate Seminar in Ecology, Evolution and Systematics	2-1
	Credits	**6-5**
	Total Credits	**30**

[1] A maximum of six hours of 4000-level courses can be counted toward the M.S.; please see detailed requirements and sample schedules in program notes.

Sample Schedule Cell/Molecular Biology Focus

Course	Title	Credits
Year One		
Fall		
BIOL 5050	Molecular Techniques Lab	2
BIOL 5700	Advanced Molecular Biology	3
BIOL 5800	Research Colloquium	1
BIOL 5990	Thesis Research	1
BIOL 5810	Department Seminar	0
	Credits	**7**
Spring		
BIOL 5070	Advanced Biological Chemistry	3
BIOL 5820	Graduate Seminar in Cell and Molecular Regulation	1
BIOL 5860	Scientific Communication	1
BIOL 5990	Thesis Research	1
BIOL 5810	Department Seminar	0
	Credits	**6**
Summer		
BIOL 5990	Thesis Research	2
BIOL 5980	Graduate Reading Course	1
	Credits	**3**
Year Two		
Fall		
BIOL 5030	Genomics	3
BIOL 5640	Advanced Microbiology	3
BIOL 5800	Research Colloquium	1

BIOL 5990	Thesis Research	1
BIOL 5810	Department Seminar	0
	Credits	**8**
Spring		
BIOL 5630	Concepts of Immunobiology	3
BIOL 5820	Graduate Seminar in Cell and Molecular Regulation	2
BIOL 5990	Thesis Research	1
BIOL 5810	Department Seminar	0
	Credits	**6**
	Total Credits	**30**

Sample Schedule for Ecology/ Evolutionary Biology Focus

Course	Title	Credits
Year One		
Fall		
BIOL 5550	Advanced Ecology	3
BIOL 5030	Genomics	3
BIOL 5800	Research Colloquium	1
BIOL 5990	Thesis Research	1
BIOL 5810	Department Seminar	0
	Credits	**8**
Spring		
BIOL 5110	Advanced Sex, Evolution and Behavior	3
BIOL 5840	Graduate Seminar in Ecology, Evolution and Systematics	2
BIOL 5860	Scientific Communication	1
BIOL 5990	Thesis Research	1
BIOL 5810	Department Seminar	0
	Credits	**7**
Summer		
BIOL 5990	Thesis Research	2
	Credits	**2**
Year Two		
Fall		
BIOL 5480	Conservation Biology	3
BIOL 5560	Advanced Evolution	3
BIOL 5800	Research Colloquium	1
BIOL 5990	Thesis Research	1
BIOL 5810	Department Seminar	0
	Credits	**8**
Spring		
BIOL 5840	Graduate Seminar in Ecology, Evolution and Systematics	2
BIOL 5###	Ecology/Evolutionary Biology Elective	2
BIOL 5990	Thesis Research	1
BIOL 5810	Department Seminar	0
	Credits	**5**
	Total Credits	**30**

Contact Us

For additional information about our program, please contact:

Robert Wood, Ph.D.
314-977-3718
robert.wood@slu.edu