BIOLOGY (MS)

Our faculty members are well-respected leaders in their fields and publish extensively. They also attract a significant amount of external grant support which allows them to pursue research projects that are at the forefront of modern biology. Students receive individual attention as they pursue their own research and work toward their master's degree.

The MS in Biology degree program focuses on the development of experimental and intellectual skills required for vigorous research. Our program is research/thesis-based and takes most students two to three years to complete.

Students are assigned an advisor to help them develop an individualized curriculum. Once a curriculum is selected, students join the labs of their thesis directors and begin their research.

Curriculum

The Master of Science in Biology requires 30 hours of coursework and a formal research thesis.

Course Requirements

To become an official candidate for the MS degree, students must earn 30 credit hours and show satisfactory performance in course work and thesis research.

Code	Title	Hours
Required Courses		
BIOL 470	Biostats & Exp Design Lec/Lab [1]	4
BIOL 500	Scientific Logic [2]	3
BIOL 510	Instructions in Teaching Biology	1
BIOL 511	Biology Teaching Practicum [3]	2
BIOL 501	Seminar	1
BIOL 502	Department Seminar	1
BIOL 422	Research (hours vary, students will earn 3-9 hrs over course of program)	1-6
Graduate level BIOL electives		*9-15*
BIOL 402	Microbiology	
BIOL 405	Advanced Development	
BIOL 409	Advanced Genetics	
BIOL 410	Advanced Cell Biology	
BIOL 413	Advanced Immunology	
BIOL 415	Advanced Parasitology	
BIOL 416	Limnology Lec/Lab	
BIOL 417	Wetland Ecology Lec/Lab	
BIOL 418	Aquatic Insects Lecture & Laboratory	
BIOL 426	Entomology Lec/Lab	
BIOL 482	Advanced Molec Genetics	
BIOL 483	Pop Genetics	
BIOL 485	Prin Electron Microscopy Lec/Lab	
BIOL 488	Bioinformatics	
BIOL 493	Directed Reading	
BIOL 495	Special Topics	
BIOL 595	Thesis Supervision	0
Total Required Hours		**30**

1. BIO 470 must be completed with a grade of B or higher to demonstrate proficiency in experimental design and analysis.
2. BIO 500 must be completed with a grade of B or higher to demonstrate proficiency in scientific writing and reading scientific literature.
3. University-funded students must take BIOL 511 Biology Teaching Practicum twice (4 credit hours). Grant-funded or externally-funded students take BIOL 511 Biology Teaching Practicum once (2 credit hours).

All PhD students and students in thesis-based Master's degree programs must successfully complete UNIV 370 Responsible Conduct in Research and Scholarship or other approved coursework in responsible conduct of research as part of the degree requirements. It is strongly recommended that students complete this two-day training before beginning the dissertation/thesis stage of the program.

Suggested Sequence of Courses

The below sequence of courses is meant to be used as a suggested path for completing coursework. An individual student's completion of requirements depends on course offerings in a given term as well as the start term for a major or graduate study. Students should consult their advisor for assistance with course selection.

Course	Title	Hours
Year One		
Fall		
BIOL 500	Scientific Logic	3
BIOL 510	Instructions in Teaching Biology	1
Elective		0-5
	Hours	**7**
Spring		
Electives or Research		0-6
BIOL 511	Biology Teaching Practicum [1]	2
	Hours	**8**
Year Two		
Fall		
BIOL 470	Biostats & Exp Design Lec/Lab [2]	4
BIOL 501	Seminar	1
BIOL 502	Department Seminar	1
Electives or Research		0-3
	Hours	**9**
Spring		
Electives or Research		6-7
	Hours	**6**
	Total Hours	**30**

1. Students on University Scholarships must take BIOL 511 Biology Teaching Practicum two times. Unsupported students, students supported through an advisor's grant, and students supported by their own grants take BIOL 511 one time.
2. BIOL 470 Biostats & Exp Design Lec/Lab is offered every other year and alternates with BIOL 500 Scientific Logic.

Thesis Requirements

Research is the focus of the master's degree program at Loyola University Chicago. Faculty engage students in ongoing studies and students are well-supported when taking on new projects and challenges. Students work with their thesis advisors to develop and conduct a specialized research project. Based on this work, students write and defend a master's thesis. Students in the MS program must write and present a thesis outline to their faculty committee. The proposal outline must be approved by February 1 of the student's first year in the program. Following this approval, students will write and defend the master's thesis. The final thesis will be deposited in a publicly accessible database in accordance with Graduate School policy.

Learning Outcomes

Upon completion of the MS in Biology, students will be able to demonstrate

- Proficiency in experimental design and analysis.
- Proficiency in scientific writing and reading scientific literature
- Communication skills in both teaching and presenting research
- The ability to critically think, analyze data and write scientifically
- The ability to interact as an independent researcher