

BIOLOGY, MASTER OF SCIENCE (M.S.)

Program goals

The Department of Biology prepares graduate students to:

1. Acquire training in a chosen subdiscipline of biology
2. Learn research techniques used in the subdiscipline
3. Develop presentation skills
4. Develop publication skills

Student learning outcomes

Upon completion of the M.S. in Biology, students will:

1. Demonstrate knowledge of a chosen subfield, including the most recent advances in research
2. Apply appropriate research techniques (i.e., field or lab)
3. Effectively communicate research and findings in a professional context
4. Effectively write papers for publication

VCU Graduate Bulletin, VCU Graduate School and general academic policies and regulations for all graduate students in all graduate programs

The VCU Graduate Bulletin website documents the official admission and academic rules and regulations that govern graduate education for all graduate programs at the university. These policies are established by the graduate faculty of the university through their elected representatives to the University Graduate Council.

It is the responsibility of all graduate students, both on- and off-campus, to be familiar with the VCU Graduate Bulletin as well as the Graduate School website (<http://www.graduate.vcu.edu/>) and academic regulations in individual school and department publications and on program websites. However, in all cases, the official policies and procedures of the University Graduate Council, as published on the VCU Graduate Bulletin and Graduate School websites, take precedence over individual program policies and guidelines.

Visit the **academic regulations section** for additional information on academic regulations for graduate students. (<http://bulletin.vcu.edu/academic-regs/>)

Degree candidacy requirements

A graduate student admitted to a program or concentration requiring a final research project, work of art, thesis or dissertation, must qualify for continuing master's or doctoral status according to the degree candidacy requirements of the student's graduate program. Admission to degree candidacy, if applicable, is a formal statement by the graduate student's faculty regarding the student's academic achievements and the student's readiness to proceed to the final research phase of the degree program.

Graduate students and program directors should refer to the following degree candidacy policy as published in the VCU Graduate Bulletin for complete information and instructions.

Visit the **academic regulations section** for additional information on degree candidacy requirements. (<http://bulletin.vcu.edu/academic-regs/grad/candidacy/>)

Graduation requirements

As graduate students approach the end of their academic programs and the final semester of matriculation, they must make formal application to graduate. No degrees will be conferred until the application to graduate has been finalized.

Graduate students and program directors should refer to the following graduation requirements as published in the Graduate Bulletin for a complete list of instructions and a graduation checklist.

Visit the **academic regulations section** for additional information on graduation requirements. (<http://bulletin.vcu.edu/academic-regs/grad/graduation-info/>)

Other information

Details on the M.S. degree in biology can be found in the Guidelines for Graduate Studies in Biology (http://biology.vcu.edu/media/biology/pdf/MS_GuidelinesRevised2015.pdf).

Apply online today. (<https://www.vcu.edu/admissions/apply/graduate/>)

Admission requirements

Degree:	Semester(s) of entry:	Deadline dates:	Test requirements:
M.S.	Fall	Jan 15	
	Spring and summer	By special permission of graduate director	

In addition to the general admission requirements of the VCU Graduate School (<http://bulletin.vcu.edu/graduate/study/admission-graduate-study/admission-requirements/>), the following requirements represent the minimum acceptable standards for admission:

1. Bachelor's degree in biological or related science or equivalent
2. Appropriate college-level background in mathematics, chemistry and physics
3. Three letters of recommendation pertaining to the applicant's potential ability as a graduate student in biology
4. Student's written statement concerning career and research interests
5. Transcripts of all previous college work

Degree requirements

In addition to general VCU Graduate School graduation requirements (<http://bulletin.vcu.edu/academic-regs/grad/graduation-info/>), students are required to complete course work in core and elective courses and to conduct significant research.

1. Credit hour requirements: Master of Science degree candidates are required to take a minimum of 30 graduate credit hours. A maximum of six credit hours from graduate course work taken at other institutions may be transferred if they meet approval of the department.
2. Grade requirements: Receipt of a grade of C or lower in two courses constitutes automatic dismissal from the graduate program in

biology. Courses with a grade of C or lower cannot be applied to satisfying the degree requirements.

3. Other requirements: All graduate students are required to write a thesis proposal and a formal thesis following a prescribed format. In order to initiate thesis research, the thesis proposal must be approved by the student's graduate committee and the chair of the department, and the student must be approved for degree candidacy. Each student will be required to pass a final examination, which will be primarily a defense of the thesis. Students may specialize within many areas, such as molecular and cellular biology, genetics, aquatic and terrestrial ecology, systematics, physiology, neurobiology and developmental biology. Students also may develop an interdisciplinary focus to their degree programs, for example, within areas such as bioinformatics, cancer biology, forensic science and environmental science.

Students should take STAT 543 or BIOS 543 as early as possible. Students entering the program with a statistics background equivalent to one of these courses may petition to have this requirement waived.

Contact

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Program website: biology.vcu.edu/graduate-program/ms-program-in-biology/ (<http://biology.vcu.edu/graduate-program/ms-program-in-biology/>)

Curriculum requirements

Course	Title	Hours
Required courses		
BIOL 693	Current Topics in Biology (one-credit course repeated for two credits)	2
BIOL 698	Thesis	6
BIOS 543 or STAT 543	Graduate Research Methods I ¹ Statistical Methods I	3
Recommended electives		
Choose courses from the following list in consultation with adviser:		19
BIOL/BNFO 601	Integrated Bioinformatics	
BIOL 606	Quantitative Ecology	
BIOL 610	Conservation Applications	
BIOL 618	Ecosystems Ecology	
BIOL 626	Physiological Ecology	
BIOL 630	Patterns of Mammalian Reproduction	
BIOL 640	Evolution and Molecular Markers	
BIOL 650	Conservation Genetics	
BIOL/ENVS/URSP 654	Environmental Remote Sensing	
BIOL 660	Developmental Biology	
BIOL 676	Plant and Animal Cell Biology	
BIOL 690	Biology Seminar	
BIOL 691	Special Topics in Biology	
BIOL 692	Independent Study	
BIOL 693	Current Topics in Biology	
BIOL 698	Thesis	
Any 500- or 600-level courses in ANAT, BIOL, BIOC, BIOS, BNFO, CLSE, EGRB, ENVS, HEMS, HGEN, LFSC, MEDC, MICR, NEUS, PCEU, PHTX, PHIS or STAT		
Any 600-level course in CHEM, EDUS, GRAD, MATH, PHYS, PSYC or URSP		
Total Hours		30

The minimum total of graduate credit hours required for this degree is 30.