FORENSIC SCIENCE, MASTER OF SCIENCE (M.S.) WITH A CONCENTRATION IN FORENSIC BIOLOGY

Program accreditation
Forensic Science Education Programs Accreditation Commission

Program goal

The Master of Science in Forensic Science is one of only a few of its kind in the U.S. The mission of the program is to prepare students for careers as forensic scientists in government and private forensic laboratories, as well as further graduate and/or professional academic pursuits.

Core courses in the forensic science curriculum offer broad exposure to core forensic concepts, as well as legal issues, expert testimony, professional ethics, quality assurance and current topics in research and development within the forensic sciences. Specialty concentrations offered include digital forensics and incident response, forensic biology, forensic chemistry/drugs and toxicology, forensic chemistry/trace, and forensic physical analysis. A strong emphasis is placed on laboratory course work, providing students with significant laboratory and research experience. Several of the laboratory courses are taught by practicing professional forensic scientists at the Virginia Department of Forensic Science Central Laboratory, which is nationally accredited.

Student learning outcomes

1. Students will be able to apply basic scientific principles and laboratory procedures to forensic science.
2. Students will demonstrate capabilities, use, potential and limitations of forensic laboratory theory and techniques.
3. Students will demonstrate the ability to perform (report and orally present) independent research in an area of forensic science.
4. Students will demonstrate an understanding of legal procedure, rules of evidence, ethical and professional duties, and responsibilities of the forensic scientist.
5. Students will be able to assess and interpret scientific data, uncertainty and bias in forensic science practice.
6. Students will be able to evaluate and analyze human biological evidence using current standard practices, and recommend alternative analysis methods where necessary to improve result outcomes.

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. (https://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. (https://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. (https://bulletin.vcu.edu/academic-regs/grad/graduation-info/)

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

Admission requirements

Degree:	Semester(s) of entry:	Deadline dates:	Test requirements:
M.S.	Fall	Mar 1	

Note: Review of application and offers of admission will begin Jan. 15 and proceed until enrollment openings are filled. All applicants are automatically considered for graduate teaching assistantships in the Department of Forensic Science; however, the earlier a student's application is complete, the better the chance of being selected for an assistantship.

Core Admission Requirements

In addition to the general admission requirements of the VCU Graduate School (https://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 a discipline appropriate to the concentration, including forensic science, or a degree with equivalent course work
2. An undergraduate GPA that exceeds 2.9 on a 4.0 scale (Most students entering the forensic science graduate program have a minimum GPA of 3.0 on undergraduate work.)
3. Assessment of prior graduate course work and/or relevant laboratory experience (where applicable)
4. Three letters of recommendation pertaining specifically to the student's potential ability as a graduate student in forensic science
5. Personal statement

Applicants are required to select a concentration and will be considered only for that concentration. If course work deficiencies are identified, students may be required to take additional foundational courses beyond those required for the concentration.

Additional admission requirements for concentration in forensic biology

In addition to the M.S. in Forensic Science general admission requirements, applicants to the forensic biology concentration must have completed a minimum of nine credit hours or equivalent of upper-level course work in the biological or biochemical sciences, including general biochemistry. This may also include, but is not limited to, course work in cell biology, genetics and/or molecular biology.

Degree requirements

The graduate program is a full-time, two-year program. Courses will vary depending on the concentration selected. Required and elective courses are offered at various times, day and night, throughout the week. The M.S. in Forensic Science requires 42 graduate credit hours of course work, including 21 credit hours of required core course work and 21 credit hours of specialized course work designed for each concentration (including electives). The required course work includes a directed research project, which is an extensive research experience conducted within a forensic laboratory setting.

In addition to general VCU Graduate School graduation requirements (https://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: Students must complete a minimum of 42 graduate-level credit hours as outlined in the list of core and concentration requirements, including electives.
2. Grade requirements: Students must maintain an ongoing, cumulative minimum GPA of 3.0. Receipt of a grade of C in two or more courses will constitute an automatic dismissal from the graduate program in forensic science. Receipt of a grade of D or lower in any one course will constitute an automatic dismissal from the graduate program in forensic science.
3. Other requirements: Students must maintain continuous, full-time enrollment. Interruption in continuous enrollment or full-time status for any reason without a leave of absence approved by the forensic science graduate committee will require that students reapply to the program. Request for credit for graduate course work taken at other institutions must be submitted to the director of graduate studies in forensic science and will be considered on a case-by-case basis by the forensic science graduate committee. If course work deficiencies are identified, students may be required to take additional foundational courses beyond those listed below. These will not count toward the 42 required credit hours.

Curriculum requirements

Course	Title	Hours
FRSC 565	Scientific Crime Scene Investigation	3
FRSC 570	Forensic Science Seminar (one-credit course repeated for three credits) [1]	3
FRSC 580	Applied Statistics for Forensic Science	3
or BIOS 543	Graduate Research Methods I	
or STAT 543	Statistical Methods I	
FRSC 660	Toolmark Examinations	3
or FRSC 661	Analysis of Pattern Evidence	
or FRSC 662	Firearm Identification	
FRSC 670	Forensic Evidence and Criminal Procedure	3
FRSC 677	Professional Practices and Expert Testimony	3
FRSC 793	Directed Research in Forensic Science	3
Forensic biology concentration courses		
BIOL 516	Population Genetics	3
FRSC 671	Instrumentation in Forensic Chemistry [1]	2
FRSC 673 & FRSZ 673	Forensic Microscopy and Forensic Microscopy Laboratory [1]	3
FRSC 675 & FRSZ 675	Forensic Serology and DNA Analysis and Forensic Serology and DNA Analysis Laboratory [1]	3
FRSC 676	Advanced Forensic DNA Analysis	3
FRSC 686	Emerging Molecular Applications for Forensic Biology	3
Recommended electives		
Select four credit hours from the following: [2]		4
BIOC 503	Biochemistry, Cell and Molecular Biology	
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BIOL/BNFO 540	Fundamentals of Molecular Genetics	
BIOL 580	Eukaryotic Biotechnology	
BIOL 693	Current Topics in Biology (molecular biology)	
BNFO 507	Essentials of Molecular Biology in Bioinformatics	
BNFO 601	Integrated Bioinformatics	
BNFO 653	Advanced Molecular Genetics: Bioinformatics	
FRSC 505	Forensic Entomology	
FRSC 566	Advanced Crime Scene Investigation	
FRSC 580	Applied Statistics for Forensic Science	
FRSC 591	Topics in Forensic Science	
FRSC 607	Forensic Taphonomy	
FRSC 644	Analytical Considerations in Forensic Toxicology	
FRSC 645	Applications in Forensic Toxicology	
FRSC 660	Toolmark Examinations	

	FRSC 662	Firearm Identification
	FRSC 663	Forensic Medicine
	FRSC 690	Scientific Writing
	FRSC 692	Forensic Science Independent Study
	FRSC 693	Current Topics in Forensic Science
	FRSC 792	Research Techniques
	FRSC 793	Directed Research in Forensic Science
	HGEN 501	Introduction to Human Genetics
	HGEN 690	Genetics Research Seminar
	MICR 607	Techniques in Molecular Biology and Genetics
Total Hours		**42**

1

Courses required during the first fall semester upon entry in to the program

2

In consultation with adviser; at least one elective must be a graduate-level molecular biology related course.

The minimum number of graduate credit hours required for this degree is 42.

Accelerated opportunities

The department offers opportunities for qualified undergraduate students to earn both an undergraduate and graduate degree in a minimum of five years by completing approved graduate courses during the senior year of their undergraduate program. See the individual program pages in the Undergraduate Bulletin for details.

- B.S. in Biology and M.S. in Forensic Science with a concentration in forensic biology (https://bulletin.vcu.edu/undergraduate/college-humanities-sciences/biology/biology-bs/)
- B.S. in Forensic Science with a concentration in forensic biology and M.S. in Forensic Science with a concentration in forensic biology (https://bulletin.vcu.edu/undergraduate/college-humanities-sciences/forensic-science/forensic-science-bs-concentration-forensic-biology/)

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Program website: forensicscience.vcu.edu (http://forensicscience.vcu.edu/)