

FORENSIC SCIENCE, MS

Banner Code: SC-MS-FRSC

Academic Advising

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The Forensic Science Program offers a master's degree in Forensic Science with four concentrations to best suit the student's future career goals- Crime Scene Investigation, Forensic Biology Analysis, Forensic Chemistry Analysis, and Forensic/Biometric Identity Analysis. This graduate degree will prepare students for a rewarding career in federal, state and local laboratories, investigative or intelligence agencies, private companies, or allow professionals currently working in the field an opportunity to improve their education and optimize career advancement.

Located in Northern Virginia within the Washington DC Metro area, our students are afforded the opportunity to study in close proximity to a plethora of federal, state and local crime laboratories, investigative and intelligence agencies. These facilities provide unique access to forensic science experts and offer students competitive internships and job opportunities.

Available concentrations include:

- Crime Scene Investigation
- Forensic Biology Analysis
- Forensic Chemistry Analysis
- Forensic/Biometric Identity Analysis

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (<http://catalog.gmu.edu/admissions/graduate-policies/>) section of this catalog. International students and students having earned international degrees should also refer to Admission of International Students (<https://catalog.gmu.edu/admissions/international-students/>) for additional requirements.

Eligibility

Forensic Biology Analysis and Forensic Chemistry Analysis Concentrations

A bachelor's degree in a forensic or natural science from an institution of higher education accredited by a Mason-recognized U.S. institutional accrediting agency or international equivalent.

Forensic/Biometric Identity Analysis Concentration

A bachelor of science or bachelor of arts degree in a forensic or natural science, computer science, computer electronic or electrical engineering, information systems or information technology (or its equivalent coursework in a relevant field) from an institution of higher education

accredited by a Mason-recognized U.S. institutional accrediting agency or international equivalent.

Crime Scene Investigation Concentration

A bachelor of science or bachelor of arts degree in a related field from an institution of higher education accredited by a Mason-recognized U.S. institutional accrediting agency or international equivalent.

Application Requirements

To apply for this program, prospective students should submit the George Mason University Admissions Application (<https://www2.gmu.edu/admissions-aid/apply-now/>) and its required supplemental documentation, and:

- Three letters of recommendation from academic references or references in the industry or government who are familiar with the applicant's academic and/or professional accomplishments.
- Detailed goal statement to include why you are interested in coming into Mason's Forensic Science Master's program, career goals, and professional aspirations. Forensic Biology and Forensic Chemistry concentration applicants must also include their proposed area of interest for their final research project.

The GRE is not required for admission into this program.

Policies

For policies governing all graduate programs, see AP6 Graduate Policies (<http://catalog.gmu.edu/policies/academic/graduate-policies/>).

Transferring Previous Graduate Credit into this Program

Previously earned and relevant graduate credits may be eligible for transfer into this program; details can be found in the Credit by Exam or Transfer (<https://catalog.gmu.edu/policies/academic/graduate-policies/>) section of this catalog.

Premium Tuition

Students enrolled in this professional MS program are charged at a differential (premium) tuition rate. Therefore, any courses or secondary programs that students may enroll in are subject to the differential tuition rate. The Forensics Graduate Certificate (<http://catalog.gmu.edu/colleges-schools/science/forensic-program/forensics-graduate-certificate/>) has the same premium tuition rate, making it the ideal program for concurrent enrollment (if desired).

Concentration Declaration

Students must declare their intended concentration upon application. In the event that a student wishes to change their concentration, students may request to change their concentration by submitting a letter to the Forensic Science Program Director detailing the request and providing justification. These requests and possible substitutions/waivers will be considered on a case-by-case basis and only when the appropriate admissions requirements are met.

Criminal Background Check

The successful passing of a Virginia Department of Forensic Sciences (<http://www.dfs.virginia.gov/>) background check is required prior to gaining access to FRSC 540 Advanced Forensic Chemistry, FRSC 541

Forensic Chemistry Laboratory, FRSC 560 Advanced Forensic DNA Sciences, and FRSC 561 Forensic DNA Laboratory.

Course Notes

FRSC 560 Advanced Forensic DNA Sciences and FRSC 561 Forensic DNA Laboratory

Students shall have completed undergraduate coursework in molecular and/or cell biology, as well as genetics, or students must obtain permission of the instructor prior to taking FRSC 560 Advanced Forensic DNA Sciences and FRSC 561 Forensic DNA Laboratory.

FRSC 540 Advanced Forensic Chemistry and FRSC 541 Forensic Chemistry Laboratory

Students shall have completed undergraduate coursework in general chemistry including polarity and acid/base chemistry. Students shall also have completed Organic Chemistry and be able to identify functional groups and other chemistry structures that make up a molecule.

Exposure to instrumental techniques such as gas chromatography, mass spectrometry and infrared spectroscopy is recommended or permission of instructor.

Requirements

Degree Requirements

Total credits: 36

Students should refer to the Admissions & Policies tab for specific policies related to this program.

Select one concentration from the following:

Concentration in Crime Scene Investigation (CSIN)

This concentration educates students for a career as a crime scene investigator.

Code	Title	Credits
Core Courses		15
FRSC 500	Introduction to Forensic Science	
FRSC 510	Basic Crime Analysis	
FRSC 511	Advanced Crime Scene Analysis	
FRSC 530	Law and Forensic Science	
FRSC 570	Trace and Physical Evidence Concepts	
Research Project or Non-Research Project		8-9
Research Project Option		

The Research Project Option is designed for students planning to pursue a doctoral degree or a career involving research in the field of forensic science or other related disciplines. The research project is based on laboratory research that must be preapproved by the advisory committee, which is appointed during the first semester of registration in FRSC 610 (1 credit) Forensic Research Project. Students are responsible for selecting research advisors who can commit as an advisor during the semesters that the student indicates that they will be conducting their research and enrolled in FRSC 610. Students must then complete their written research project and present their research during an oral defense during the semester of registration in FRSC 610 (4 credit) Forensic Research Project.

FRSC 600	Forensics Seminar
FRSC 601	Quantitative Methods for Forensic Scientists
FRSC 610	Forensic Research Project

Non-Research Project Option

Students selecting this option are not required to complete a laboratory-based research project. Instead, they must successfully pass FRSC 699 (0 credits) Forensic Comprehensive Examination to demonstrate thorough comprehension of the curriculum and must select 8-9 credits of additional elective coursework.

FRSC 699	Comprehensive Examination
Select 8-9 credits of additional FRSC elective courses	

Electives 12-13

Select 12-13 credits from the following courses to reach a total of 36 credits:

FRSC 512	Physical Evidence Laboratory
FRSC 513	Forensic Photography
FRSC 514	Survey of Forensic Chemistry, Biology, and DNA Analysis
FRSC 515	Selected Topics in Forensic Science
FRSC 516	Forensic Drone Photography
FRSC 517	Questioned Document Examination
FRSC 518	Analytical Thinking Violent Crime Profiling
FRSC 520	Toxicology
FRSC 525	Molecular Biology
FRSC 526	Molecular Biology Laboratory
FRSC 550	Issues in Forensic Anthropology
FRSC 580	Facial Reconstruction
FRSC 590	Medicolegal Death Investigation and Pathology
FRSC 600	Forensics Seminar
FRSC 620	Face and Biometric Pattern Analysis
FRSC 630	Fingerprint Identification
FRSC 640	Legal, Privacy and Ethical Issues in Identity Analysis
FRSC 650	Identity Analysis Applications
FRSC 660	FARO Forensic 3D Documentation
FRSC 670	Forensic Genomics
FRSC 690	Capstone - Moot Court Expert Testimony

FRSC 790	Internship in Forensic Science (Credits: 1-6)	
Total Credits		36

Concentration in Forensic Biology Analysis (FRSB)

This concentration educates students for a career as a forensic biology laboratory analyst.

The successful passing of a Virginia Department of Forensic Sciences background check is required prior to gaining access to FRSC 560 Advanced Forensic DNA Sciences and FRSC 561 Forensic DNA Laboratory. In order to obtain a career as a DNA Analyst, the student should have undergraduate coursework in Statistics, Molecular Biology, Genetics, and Biochemistry.

Code	Title	Credits
Core Courses		30
FRSC 500	Introduction to Forensic Science	
FRSC 510	Basic Crime Analysis	
FRSC 512	Physical Evidence Laboratory	
or FRSC 630	Fingerprint Identification	
FRSC 514	Survey of Forensic Chemistry, Biology, and DNA Analysis	
FRSC 530	Law and Forensic Science	
FRSC 560 & FRSC 561	Advanced Forensic DNA Sciences and Forensic DNA Laboratory	
FRSC 570	Trace and Physical Evidence Concepts	
FRSC 600	Forensics Seminar	
FRSC 601	Quantitative Methods for Forensic Scientists	
FRSC 610	Forensic Research Project	
Electives		6
Select 6 credits from the following courses:		
FRSC 511	Advanced Crime Scene Analysis	
FRSC 512	Physical Evidence Laboratory	
FRSC 513	Forensic Photography	
FRSC 515	Selected Topics in Forensic Science	
FRSC 516	Forensic Drone Photography	
FRSC 517	Questioned Document Examination	
FRSC 518	Analytical Thinking Violent Crime Profiling	
FRSC 520	Toxicology	
FRSC 525	Molecular Biology	
FRSC 526	Molecular Biology Laboratory	
FRSC 550	Issues in Forensic Anthropology	
FRSC 580	Facial Reconstruction	
FRSC 590	Medicolegal Death Investigation and Pathology	
FRSC 600	Forensics Seminar	
FRSC 620	Face and Biometric Pattern Analysis	
FRSC 630	Fingerprint Identification	
FRSC 640	Legal, Privacy and Ethical Issues in Identity Analysis	
FRSC 650	Identity Analysis Applications	
FRSC 660	FARO Forensic 3D Documentation	
FRSC 670	Forensic Genomics	

FRSC 690	Capstone - Moot Court Expert Testimony	
FRSC 790	Internship in Forensic Science (Credits: 1-6)	
Total Credits		36

Concentration in Forensic Chemistry Analysis (FRCA)

This concentration educates students for a career as a forensic chemistry laboratory analyst.

The successful passing of a Virginia Department of Forensic Sciences background check is required prior to gaining access to FRSC 540 Advanced Forensic Chemistry and FRSC 541 Forensic Chemistry Laboratory.

Code	Title	Credits
Core Courses		33
FRSC 500	Introduction to Forensic Science	
FRSC 510	Basic Crime Analysis	
FRSC 512	Physical Evidence Laboratory	
or FRSC 630	Fingerprint Identification	
FRSC 514	Survey of Forensic Chemistry, Biology, and DNA Analysis	
FRSC 520	Toxicology	
FRSC 530	Law and Forensic Science	
FRSC 540 & FRSC 541	Advanced Forensic Chemistry and Forensic Chemistry Laboratory	
FRSC 570	Trace and Physical Evidence Concepts	
FRSC 600	Forensics Seminar	
FRSC 601	Quantitative Methods for Forensic Scientists	
FRSC 610	Forensic Research Project	
Electives		3
Select 3 credits from the following courses:		
FRSC 511	Advanced Crime Scene Analysis	
FRSC 512	Physical Evidence Laboratory	
FRSC 513	Forensic Photography	
FRSC 515	Selected Topics in Forensic Science	
FRSC 516	Forensic Drone Photography	
FRSC 517	Questioned Document Examination	
FRSC 518	Analytical Thinking Violent Crime Profiling	
FRSC 525	Molecular Biology	
FRSC 526	Molecular Biology Laboratory	
FRSC 550	Issues in Forensic Anthropology	
FRSC 580	Facial Reconstruction	
FRSC 590	Medicolegal Death Investigation and Pathology	
FRSC 600	Forensics Seminar	
FRSC 620	Face and Biometric Pattern Analysis	
FRSC 630	Fingerprint Identification	
FRSC 640	Legal, Privacy and Ethical Issues in Identity Analysis	
FRSC 650	Identity Analysis Applications	
FRSC 660	FARO Forensic 3D Documentation	
FRSC 670	Forensic Genomics	
FRSC 690	Capstone - Moot Court Expert Testimony	

FRSC 790	Internship in Forensic Science (Credits: 1-6)	
Total Credits		36

Concentration in Forensic/Biometric Identity Analysis (FRBI)

This concentration educates students for a career as an identity intelligence analyst.

Code	Title	Credits
Core Courses		
24		
FRSC 500	Introduction to Forensic Science	
FRSC 510	Basic Crime Analysis	
FRSC 514	Survey of Forensic Chemistry, Biology, and DNA Analysis	
FRSC 530	Law and Forensic Science	
FRSC 620	Face and Biometric Pattern Analysis	
FRSC 630	Fingerprint Identification	
FRSC 640	Legal, Privacy and Ethical Issues in Identity Analysis	
FRSC 650	Identity Analysis Applications	
Research Project or Non-Research Project		8-9

Research Project Option

The Research Project Option is designed for students planning to pursue a doctoral degree or a career involving research in the field of forensic science or other related disciplines. The research project is based on laboratory research that must be preapproved by the advisory committee, which is appointed during the first semester of registration in FRSC 610 (1 credit) Forensic Research Project. Students are responsible for selecting research advisors who can commit as an advisor during the semesters that the student indicates that they will be conducting their research and enrolled in FRSC 610. Students must then complete their written research project and present their research during an oral defense during the semester of registration in FRSC 610 (4 credits) Forensic Research Project.

FRSC 600	Forensics Seminar
FRSC 601	Quantitative Methods for Forensic Scientists
FRSC 610	Forensic Research Project

Non-Research Project Option

Students selecting this option are not required to complete a laboratory-based research project. Instead, they must successfully pass FRSC 699 (0 credits) Forensic Comprehensive Examination to demonstrate thorough comprehension of the curriculum and must select 8-9 credits of additional elective coursework.

FRSC 699	Comprehensive Examination
Select 8-9 credits of additional FRSC elective courses	

Electives

Select 3-4 credits from the following courses to reach a total of 36 credits:

FRSC 511	Advanced Crime Scene Analysis
FRSC 512	Physical Evidence Laboratory
FRSC 513	Forensic Photography

FRSC 515	Selected Topics in Forensic Science	
FRSC 516	Forensic Drone Photography	
FRSC 517	Questioned Document Examination	
FRSC 518	Analytical Thinking Violent Crime Profiling	
FRSC 520	Toxicology	
FRSC 525	Molecular Biology	
FRSC 526	Molecular Biology Laboratory	
FRSC 550	Issues in Forensic Anthropology	
FRSC 570	Trace and Physical Evidence Concepts	
FRSC 580	Facial Reconstruction	
FRSC 590	Medicolegal Death Investigation and Pathology	
FRSC 600	Forensics Seminar	
FRSC 660	FARO Forensic 3D Documentation	
FRSC 670	Forensic Genomics	
FRSC 690	Capstone - Moot Court Expert Testimony	
FRSC 790	Internship in Forensic Science (Credits: 1-6)	
AIT 678	National Security Challenges	
Total Credits		36

Accelerated Master's

Forensic Science, BS/Forensic Science, Accelerated MS Overview

This bachelor's/accelerated master's degree program allows academically strong undergraduates with a commitment to advance their education to obtain both the Forensic (<https://catalog.gmu.edu/colleges-schools/science/chemistry-biochemistry/chemistry-bs/>) Science, BS (<https://catalog.gmu.edu/colleges-schools/science/forensic-program/forensic-science-bs/>) and the Forensic Science, MS (<https://catalog.gmu.edu/colleges-schools/science/forensic-program/forensic-science-ms/>) degrees within an accelerated timeframe. Upon completion of this 144 credit accelerated program, students will be exceptionally well prepared for entry into their careers or into a doctoral program in the field or in a related discipline.

Students are eligible to apply for this accelerated program once they have earned at least 60 undergraduate credits and can enroll in up to 18 credits of graduate coursework after successfully completing 75 undergraduate credits. This flexibility makes it possible for students to complete a bachelor's and a master's in an accelerated timeframe.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (<http://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7>). For policies governing all graduate degrees, see AP.6 Graduate Policies (<http://catalog.gmu.edu/policies/academic/graduate-policies/>). For more information on undergraduates enrolling in graduate courses, see AP.1.4.4 Graduate Course Enrollment by Undergraduates (<https://catalog.gmu.edu/policies/academic/registration-attendance/#text>)

Concentration Declaration

Students must declare their intended concentration upon application. In the event that a student wishes to change their concentration, students may request to change their concentration by submitting a letter to the Forensic Science Program Director detailing the request and providing

justification. These requests and possible substitutions/waivers will be considered on a case-by-case basis and only when the appropriate admissions requirements are met.

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (<http://catalog.gmu.edu/admissions/graduate-policies/>) section of this catalog.

Important application information and processes for this accelerated master's program can be found here (<https://www.gmu.edu/admissions-aid/accelerated-masters/>).

Students should seek out the graduate program's advisor who will aid in choosing the appropriate graduate courses and help prepare the student for graduate studies.

Application requirements for this accelerated master's program include one letter of recommendation from a Forensic Science Program faculty member. Additionally, a detailed goal statement is required to include why you are interested in the MS in forensic science degree, career goals and professional aspirations, and proposed area of interest of your final Research Project.

The GRE and a resume are not required for admission into this program.

Successful applicants will have an overall GPA of at least 3.00. Additionally, they will have completed each of the following courses or equivalent with a minimum grade of B or higher.

Code	Title	Credits
FRSC 200	Survey of Forensic Science	3
FRSC 201	Introduction to Criminalistics	3
FRSC 302	Forensic Trace Analysis (Mason Core) (http://catalog.gmu.edu/mason-core/)	3
FRSC 303	Forensic Evidence and Ethics	3
BIOL 213	Cell Structure and Function (Mason Core) (http://catalog.gmu.edu/mason-core/)	4
CHEM 211 & CHEM 213	General Chemistry I (Mason Core) (http://catalog.gmu.edu/mason-core/) and General Chemistry Laboratory I (Mason Core) (http://catalog.gmu.edu/mason-core/)	4
CHEM 212 & CHEM 214	General Chemistry II (Mason Core) (http://catalog.gmu.edu/mason-core/) and General Chemistry Laboratory II (Mason Core) (http://catalog.gmu.edu/mason-core/)	4

Forensic Biology Analysis Concentration Applicants:

In order to obtain a career as a DNA Analyst, the student should have undergraduate coursework in Statistics, Molecular Biology, Genetics, and Biochemistry.

Accelerated Option Requirements

After the completion of 75 undergraduate credits, students may complete 3 to 12 credits of graduate coursework that can apply to both the undergraduate and graduate degrees.

In addition to applying to graduate from the undergraduate program, students in the accelerated program must submit a bachelor's/

accelerated master's transition form (available from the Office of the University Registrar (<https://registrar.gmu.edu/forms/>)) to the College of Science's Office of Academic and Student Affairs (<https://cos.gmu.edu/about/contact-us/>) by the last day to add classes of their final undergraduate semester. Students shall enroll for courses in the master's program in the fall or spring semester immediately following conferral of the bachelor's degree.

Students must maintain an overall GPA of 3.00 or higher in all graduate coursework and should consult with their faculty advisor to coordinate their academic goals.

Reserve Graduate Credit

Accelerated master's students may also take up to 6 graduate credits as reserve graduate credits. These credits do not apply to the undergraduate degree, but will reduce the master's degree by up to 6 credits. With 12 graduate credits counted toward the undergraduate and graduate degrees plus the maximum 6 reserve graduate credits, the credits necessary for the graduate degree can be reduced by up to 18.

Premium Tuition

Students enrolled in this professional MS program are charged at a differential (premium) tuition rate after the bachelor's degree has been conferred. Therefore, any courses or secondary programs that they may enroll in are subject to the differential tuition rate. The Forensics Graduate Certificate (<https://catalog.gmu.edu/colleges-schools/science/forensic-program/forensics-graduate-certificate/>) has the same premium tuition rate, making it the ideal program for concurrent enrollment (if desired).

Criminal Background Check

The successful passing of a Virginia Department of Forensic Sciences background check is required prior to gaining access to FRSC 540 Advanced Forensic Chemistry, FRSC 541 Forensic Chemistry Laboratory, FRSC 560 Advanced Forensic DNA Sciences, and FRSC 561 Forensic DNA Laboratory.

Course Notes

- FRSC 560 Advanced Forensic DNA Sciences **and** FRSC 561 Forensic DNA Laboratory

Students shall have completed undergraduate coursework in molecular and/or cell biology, as well as genetics, or students must obtain permission of the instructor prior to taking FRSC 560 Advanced Forensic DNA Sciences and FRSC 561 Forensic DNA Laboratory.

- FRSC 540 Advanced Forensic Chemistry **and** FRSC 541 Forensic Chemistry Laboratory.

Students shall have completed undergraduate coursework in general chemistry including polarity and acid/base chemistry. Students shall also have completed Organic Chemistry and be able to identify functional groups and other chemistry structures that make up a molecule. Exposure to instrumental techniques such as gas chromatography, mass spectrometry and infrared spectroscopy is recommended or permission of instructor.

Graduate Course Suggestions

Upon acceptance, students must meet with a master's accelerated program advisor to complete a Plan of Study form in order to approve eligible graduate coursework prior to registering for any graduate courses. Failure to do so may result in the removal of the course(s).

Approval does not guarantee availability in a course. The following are suggested graduate courses:

Code	Title	Credits
FRSC 500	Introduction to Forensic Science	3
FRSC 510	Basic Crime Analysis ¹	3
FRSC 514	Survey of Forensic Chemistry, Biology, and DNA Analysis ²	3
FRSC 530	Law and Forensic Science	3
FRSC 570	Trace and Physical Evidence Concepts ³	3

1

Can only be selected if FRSC 401 has been completed.

2

Can only be selected if FRSC 304 Forensic Chemistry (Mason Core) (<http://catalog.gmu.edu/mason-core/>) and FRSC 460 Forensic DNA Analysis have been completed. This course is suggested for the Forensic Biology Analysis, the Forensic Chemistry Analysis, or the Forensic/Biometric Identity Analysis concentrations.

3

Suggested for the Crime Scene Investigation, the Forensic Biology Analysis, or the Forensic Chemistry Analysis concentrations.