FORENSIC SCIENCE, BS

Banner Code: SC-BS-FRSC

Academic Advising

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The Bachelor of Science in Forensic Science degree covers various fields within forensic science including field and laboratory applications. These topics include areas such as crime scene investigation, forensic DNA, forensic chemistry, trace evidence, firearms examination, questioned document, fingerprints, arson, and drug analysis.

This degree is intended to provide students with a well-rounded, hands-on forensic science education in order to prepare students for entrance into a graduate-level educational program, and/or entry-level professional careers in public and private forensic laboratories, federal, state, or local government/law enforcement, defense, homeland security and intelligence agencies.

The Forensic Science undergraduate program provides a strong scientific foundation while simultaneously enabling students to individualize their educational experience toward specific career goals or post-graduate degrees by taking specialized forensic science and natural science courses. This degree offers concentrations in Criminalistics, Forensic Biology, Forensic Chemistry, and Interdisciplinary Forensic Science to prepare students who desire a career within these specialties.

Unique features of this program include an innovative curriculum that offers hands-on training with crime scene techniques and crime laboratory methodologies, an outdoor forensic excavation research and training facility, and courses taught by professional and distinguished faculty from various forensic agencies and laboratories.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (https://catalog.gmu.edu/admissions/undergraduate-policies/) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor's Degrees (https://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3-2), including the Mason Core (https://catalog.gmu.edu/mason-core/).

FRSC 302 Forensic Trace Analysis (Mason Core) (https://catalog.gmu.edu/mason-core/) will satisfy the writing intensive requirement.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (https://catalog.gmu.edu/policies/academic/undergraduate-policies/).

Requirements

Degree Requirements

Total credits: minimum 120

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

Students must complete the core courses, select one concentration, and complete Mason Core and Elective Credits.

All major coursework must be completed with a minimum GPA of 2.30. No more than three courses with a grade of 'D' (1.00) may be applied to the major.

Students are advised to be aware of any prerequisites that may be required for each course in the curriculum.

Students are only permitted three attempts for all major courses; following a third unsuccessful attempt the student will no longer be able to pursue the major.

Core Courses

Students in each concentration must complete the following courses:

Code	Title	Credits
Forensic Science Core Courses		
FRSC 200	Survey of Forensic Science	3
FRSC 201	Introduction to Criminalistics	3
FRSC 302	Forensic Trace Analysis (Mason Core) (https://catalog.gmu.edu/mason-core/) [1]	3
CRIM 100	Introduction to Criminal Justice (Mason Core) (https://catalog.gmu.edu/mason-core/)	3
Natural Science Core Courses		
BIOL 213 & BIOL 215	Cell Structure and Function and Cell Structure and Function Laboratory	4
BIOL 214	Biostatistics for Biology Majors	3-4
or STAT 250	Introductory Statistics I (Mason Core) (https://catalog.gmu.edu/mason-core/)	

BIOL 311 & BIOL 313	General Genetics and General Genetics Laboratory	4
CHEM 211 & CHEM 213	General Chemistry I (Mason Core) (https://catalog.gmu.edu/mason-core/) and General Chemistry Laboratory I (Mason Core) (https://catalog.gmu.edu/mason-core/)	4
CHEM 212 & CHEM 214	General Chemistry II (Mason Core) (https://catalog.gmu.edu/mason-core/) and General Chemistry Laboratory II (Mason Core) (https://catalog.gmu.edu/mason-core/)	4
CHEM 313 & CHEM 315	Organic Chemistry I and Organic Chemistry Lab I	5
CHEM 314 & CHEM 318	Organic Chemistry II and Organic Chemistry Lab II	5
MATH 113	Analytic Geometry and Calculus I (Mason Core) (https://catalog.gmu.edu/mason-core/)	4-6
or MATH 123 & MATH 124	Calculus with Algebra/Trigonometry, Part A and Calculus with Algebra/Trigonometry, Part B (Mason Core) (https://catalog.gmu.edu/mason-core/)	
PHYS 243 & PHYS 244	College Physics I (Mason Core) (https://catalog.gmu.edu/mason-core/) and College Physics I Lab (Mason Core) (https://catalog.gmu.edu/mason-core/) [2]	4
PHYS 245 & PHYS 246	College Physics II (Mason Core) (https://catalog.gmu.edu/mason-core/) and College Physics II Lab (Mason Core) (https://catalog.gmu.edu/mason-core/) [2]	4
Total Credits		**53-56**

[1] FRSC 302 will satisfy this major's writing-intensive requirement.

[2]
- Students in the Forensic Chemistry Concentration may instead choose the following physics sequence: PHYS 160 University Physics I (Mason Core) (https://catalog.gmu.edu/mason-core/) & PHYS 161 University Physics I Laboratory (Mason Core) (https://catalog.gmu.edu/mason-core/) & PHYS 260 University Physics II (Mason Core) (https://catalog.gmu.edu/mason-core/) & PHYS 261 University Physics II Laboratory (Mason Core) (https://catalog.gmu.edu/mason-core/).
- Please note that PHYS 260 University Physics II (Mason Core) (https://catalog.gmu.edu/mason-core/) & PHYS 261 University Physics II Laboratory (Mason Core) (https://catalog.gmu.edu/mason-core/) require a prerequisite of MATH 213 Analytic Geometry and Calculus III.

Concentration in Criminalistics (FRCR)

Code	Title	Credits
Forensic Science Extended Core		
FRSC 303	Forensic Evidence and Ethics	3
FRSC 304 & FRSC 305	Forensic Chemistry and Forensic Chemistry Laboratory	4
FRSC 401	Crime Scene Investigations	3
FRSC 405	Independent Research Methods	3
or FRSC 406	Forensic Internship	
FRSC 460 & FRSC 461	Forensic DNA Analysis and Forensic DNA Analysis Laboratory	4
Required Concentration Courses		
Select two lecture and laboratory pairings for a minimum of 8 credits:		8-12
FRSC 325 & FRSC 326	Molecular Biology and Molecular Biology Laboratory	
BIOL 305 & BIOL 306	Biology of Microorganisms and Biology of Microorganisms Laboratory	
BIOL 405	Microbial Genetics	
BIOL 407	Microbial Diversity	
BIOL 430	Advanced Human Anatomy and Physiology I	
BIOL 431	Advanced Human Anatomy and Physiology II	
BIOL 452 & BIOL 453	Immunology and Immunology Laboratory	
BIOL 465	Histology	
BIOL 483	General Biochemistry	
or CHEM 463 & CHEM 465	General Biochemistry I and Biochemistry Lab (Mason Core) (https://catalog.gmu.edu/mason-core/)	
BIOL 484 & BIOL 485	Cell Signaling and Disease and Cell Signaling Laboratory	
CHEM 321	Quantitative Chemical Analysis	
CHEM 331 & CHEM 336	Physical Chemistry I and Physical Chemistry Lab I (Mason Core) (https://catalog.gmu.edu/mason-core/)	
Supporting Science Electives		
Select a minimum of 7 credits (not previously taken) from the following:		7-10
FRSC 325	Molecular Biology	
FRSC 326	Molecular Biology Laboratory	
FRSC 404	Advanced Instrumentation in Forensic Chemistry	
FRSC 450	Practical Forensic Skeletal Biology	
FRSC 470	Forensic Genomics	
BINF 401	Bioinformatics and Computational Biology I	
BINF 402	Bioinformatics and Computational Biology II	
BIOL 305	Biology of Microorganisms	

BIOL 306	Biology of Microorganisms Laboratory	
BIOL 382	Introduction to Virology	
BIOL 385	Biotechnology and Genetic Engineering	
BIOL 401	Phage Discovery	
BIOL 404	Medical Microbiology	
BIOL 405	Microbial Genetics	
BIOL 407	Microbial Diversity	
BIOL 411	Advanced General Genetics	
BIOL 412	Phage Genomics	
BIOL 417	Selected Topics in Molecular and Cellular Biology (when the topic is "Illumina Sequencing")	
BIOL 421	Genetics of Human Diseases	
BIOL 430	Advanced Human Anatomy and Physiology I	
BIOL 431	Advanced Human Anatomy and Physiology II	
BIOL 452	Immunology	
BIOL 453	Immunology Laboratory	
BIOL 460	Infectious Diseases Wildlife	
or EVPP 460	Infectious Diseases of Wildlife	
BIOL 465	Histology	
BIOL 482	Introduction to Molecular Genetics	
BIOL 483	General Biochemistry	
BIOL 484	Cell Signaling and Disease	
BIOL 485	Cell Signaling Laboratory	
BIOL 486	Molecular Biology and Biotechnology Laboratory	
CHEM 321	Quantitative Chemical Analysis	
CHEM 331	Physical Chemistry I	
CHEM 336	Physical Chemistry Lab I (Mason Core) (https://catalog.gmu.edu/mason-core/)	
CHEM 427	Aquatic Environmental Chemistry	
CHEM 446	Bioinorganic Chemistry	
CHEM 463	General Biochemistry I	
CHEM 464	General Biochemistry II	
CHEM 465	Biochemistry Lab (Mason Core) (https://catalog.gmu.edu/mason-core/)	
Total Credits		**32-39**

Concentration in Forensic Biology (FRBL)

Code	Title	Credits
Forensic Science Extended Core		
FRSC 303	Forensic Evidence and Ethics	3
FRSC 304 & FRSC 305	Forensic Chemistry and Forensic Chemistry Laboratory	4
FRSC 401	Crime Scene Investigations	3
FRSC 405	Independent Research Methods	3
or FRSC 406	Forensic Internship	
FRSC 460 & FRSC 461	Forensic DNA Analysis and Forensic DNA Analysis Laboratory	4
Required Concentration Courses		
FRSC 325 & FRSC 326	Molecular Biology and Molecular Biology Laboratory	4
FRSC 470	Forensic Genomics	4
BIOL 483	General Biochemistry	4
Supporting Science Courses		
Select a minimum of 3 credits from the following courses:		3-6
FRSC 450	Practical Forensic Skeletal Biology	
BINF 401	Bioinformatics and Computational Biology I	
BINF 402	Bioinformatics and Computational Biology II	
BIOL 305	Biology of Microorganisms	
BIOL 306	Biology of Microorganisms Laboratory	
BIOL 382	Introduction to Virology	
BIOL 385	Biotechnology and Genetic Engineering	
BIOL 401	Phage Discovery	
BIOL 404	Medical Microbiology	
BIOL 405	Microbial Genetics	
BIOL 407	Microbial Diversity	
BIOL 411	Advanced General Genetics	
BIOL 412	Phage Genomics	
BIOL 417	Selected Topics in Molecular and Cellular Biology (when the topic is "Illumina Sequencing")	
BIOL 421	Genetics of Human Diseases	
BIOL 430	Advanced Human Anatomy and Physiology I	
BIOL 431	Advanced Human Anatomy and Physiology II	
BIOL 452	Immunology	
BIOL 453	Immunology Laboratory	
BIOL 460	Infectious Diseases Wildlife	
or EVPP 460	Infectious Diseases of Wildlife	
BIOL 465	Histology	
BIOL 482	Introduction to Molecular Genetics	
BIOL 484	Cell Signaling and Disease	
BIOL 485	Cell Signaling Laboratory	
BIOL 486	Molecular Biology and Biotechnology Laboratory	
Total Credits		**32-35**

Concentration in Forensic Chemistry (FRCH)

Code	Title	Credits
Extended Forensic Science Core		
FRSC 303	Forensic Evidence and Ethics	3
FRSC 304 & FRSC 305	Forensic Chemistry and Forensic Chemistry Laboratory	4

FRSC 401	Crime Scene Investigations	3
FRSC 405	Independent Research Methods	3
or FRSC 406	Forensic Internship	
FRSC 460 & FRSC 461	Forensic DNA Analysis and Forensic DNA Analysis Laboratory	4
Required Concentration Courses		
FRSC 404	Advanced Instrumentation in Forensic Chemistry	4
CHEM 321	Quantitative Chemical Analysis	4
MATH 114	Analytic Geometry and Calculus II	4
Supporting Science Courses		
Select a minimum of 7 credits from the following courses:		7-10
CHEM 331	Physical Chemistry I	
CHEM 336	Physical Chemistry Lab I (Mason Core) (https://catalog.gmu.edu/mason-core/)	
CHEM 332	Physical Chemistry II [1]	
CHEM 337	Physical Chemistry Lab II	
CHEM 422	Instrumental Methods of Chemical Analysis [1]	
CHEM 423	Instrumental Methods of Chemical Analysis Laboratory	
CHEM 424	Principles of Chemical Separation [1]	
CHEM 427	Aquatic Environmental Chemistry	
CHEM 441	Properties and Bonding of Inorganic Compounds [1]	
CHEM 446	Bioinorganic Chemistry	
CHEM 463	General Biochemistry I	
CHEM 464	General Biochemistry II	
CHEM 465	Biochemistry Lab (Mason Core) (https://catalog.gmu.edu/mason-core/)	
Total Credits		**36-39**

[1] These course selections recommend the University Physics sequence: PHYS 160 University Physics I (Mason Core) (https://catalog.gmu.edu/mason-core/), PHYS 161 University Physics I Laboratory (Mason Core) (https://catalog.gmu.edu/mason-core/), PHYS 260 University Physics II (Mason Core) (https://catalog.gmu.edu/mason-core/), PHYS 261 University Physics II Laboratory (Mason Core) (https://catalog.gmu.edu/mason-core/)

Concentration in Interdisciplinary Forensic Science (FRIN)

Code	Title	Credits
Extended Forensic Science Core		
Select 6 credits (not previously taken) of any 300-400 level FRSC courses (https://catalog.gmu.edu/courses/frsc/)		6
Interdisciplinary Courses or Minor		
Select one option from the following:		
Option One: Interdisciplinary Coursework		
Select 15 credits (not previously taken) from the following courses:		15
Any 300-400 level FRSC courses (https://catalog.gmu.edu/courses/frsc/)		
BINF 401	Bioinformatics and Computational Biology I	
BINF 402	Bioinformatics and Computational Biology II	
BIOL 305	Biology of Microorganisms	
BIOL 306	Biology of Microorganisms Laboratory	
BIOL 382	Introduction to Virology	
BIOL 385	Biotechnology and Genetic Engineering	
BIOL 401	Phage Discovery	
BIOL 404	Medical Microbiology	
BIOL 405	Microbial Genetics	
BIOL 407	Microbial Diversity	
BIOL 412	Phage Genomics	
BIOL 411	Advanced General Genetics	
BIOL 417	Selected Topics in Molecular and Cellular Biology (when the topic is "Illumina Sequencing")	
BIOL 421	Genetics of Human Diseases	
BIOL 430	Advanced Human Anatomy and Physiology I	
BIOL 431	Advanced Human Anatomy and Physiology II	
BIOL 452	Immunology	
BIOL 453	Immunology Laboratory	
BIOL 460	Infectious Diseases Wildlife	
or EVPP 460	Infectious Diseases of Wildlife	
BIOL 465	Histology	
BIOL 482	Introduction to Molecular Genetics	
BIOL 483	General Biochemistry	
BIOL 484	Cell Signaling and Disease	
BIOL 485	Cell Signaling Laboratory	
BIOL 486	Molecular Biology and Biotechnology Laboratory	
CHEM 321	Quantitative Chemical Analysis	
CHEM 331	Physical Chemistry I	
CHEM 336	Physical Chemistry Lab I (Mason Core) (https://catalog.gmu.edu/mason-core/)	
CHEM 427	Aquatic Environmental Chemistry	
CHEM 446	Bioinorganic Chemistry	
CHEM 463	General Biochemistry I	
CHEM 464	General Biochemistry II	
CHEM 465	Biochemistry Lab (Mason Core) (https://catalog.gmu.edu/mason-core/)	
Option Two: Complementary Minor		
Select one minor from the following:		8-15

Any minor offered by the College of Science (https://catalog.gmu.edu/programs/#filter=filter_29&filter_35)	
Anthropology Minor (https://catalog.gmu.edu/colleges-schools/humanities-social-sciences/sociology-anthropology/anthropology-minor/)	
Bioengineering Minor (https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/bioengineering/bioengineering-minor/)	
Computer Science Minor (https://catalog.gmu.edu/colleges-schools/engineering-computing/school-computing/computer-science/computer-science-minor/)	
Data Analysis Minor (https://catalog.gmu.edu/colleges-schools/engineering-computing/school-computing/statistics/data-analysis-minor/)	
Criminology, Law, and Society Minor (https://catalog.gmu.edu/colleges-schools/humanities-social-sciences/criminology-law-society/criminology-law-society-minor/)	
Forensic Psychology Minor (https://catalog.gmu.edu/colleges-schools/humanities-social-sciences/psychology/forensic-psychology-minor/)	
Information Technology Minor (https://catalog.gmu.edu/colleges-schools/engineering-computing/school-computing/information-sciences-technology/information-technology-minor/)	
Intelligence Studies Minor (https://catalog.gmu.edu/colleges-schools/humanities-social-sciences/criminology-law-society/intelligence-studies-minor/)	
International Security Minor (https://catalog.gmu.edu/colleges-schools/policy-government/international-security-minor/)	
Legal Studies Minor (https://catalog.gmu.edu/colleges-schools/policy-government/legal-studies-minor/)	
Photography Minor (https://catalog.gmu.edu/colleges-schools/visual-performing-arts/art/photography-minor/)	
Psychology Minor (https://catalog.gmu.edu/colleges-schools/humanities-social-sciences/psychology/psychology-minor/)	
Statistics Minor (https://catalog.gmu.edu/colleges-schools/engineering-computing/school-computing/statistics/statistics-minor/)	
Total Credits:	**14-21**

Mason Core and Electives

In order to meet a minimum of 120 credits, this degree requires additional credits (specific credit counts by concentration are shown below), which may be applied toward any remaining Mason Core (https://catalog.gmu.edu/mason-core/) requirements (outlined below), Requirements for Bachelor's Degrees (https://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3-2), and electives. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

- Criminalistics concentration: 25-35 credits
- Forensic Biology concentration: 29-35 credits
- Forensic Chemistry concentration: 25-31 credits
- Interdisciplinary Forensic Science concentration: 43-53 credits

Mason Core

Some Mason Core (https://catalog.gmu.edu/mason-core/) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (https://catalog.gmu.edu/mason-core/) requirements.

All Integration-level requirements must be completed at George Mason and cannot be satisfied through transfer credit. These courses are integral to the university's educational philosophy and ensure that all graduates demonstrate proficiency in writing, critical thinking, and integrative learning consistent with the university's standards. Rare exceptions to this policy may only be granted by the Provost's Office.

Students who have completed the following credentials are eligible for a waiver of the Foundation and Exploration (lower level) requirement categories with the exception of Written Communication, which must be met by transferring in or taking an approved coruse at George Mason University. The Integration category (upper level) is not waived under this policy. See Admissions (https://catalog.gmu.edu/admissions/undergraduate-policies/#transfertext) for more information.

- VCCS Uniform Certificate of General Studies
- VCCS or Richard Bland Associate of Science (A.S.), Associate of Arts (A.A.), Associate of Arts and Sciences (A.A.&S.), or Associate of Fine Arts (A.F.A.)

Code	Title	Credits
Foundation Requirements		
Written Communication (lower-level) (https://catalog.gmu.edu/mason-core/#written)		3
Oral Communication (https://catalog.gmu.edu/mason-core/#oral)		3
Quantitative Reasoning (https://catalog.gmu.edu/mason-core/#quantitative)		3
Information Technology and Computing (https://catalog.gmu.edu/mason-core/#information-technology)		3
Exploration Requirements		
Arts (https://catalog.gmu.edu/mason-core/#arts)		3
Global Contexts (https://catalog.gmu.edu/mason-core/#global-contexts)		3
Global History (https://catalog.gmu.edu/mason-core/#global-history)		3
Literature (https://catalog.gmu.edu/mason-core/#literature)		3
Natural Science (https://catalog.gmu.edu/mason-core/#natural-science)		7
Social and Behavioral Sciences (https://catalog.gmu.edu/mason-core/#social-behavioral-science)		3

Just Societies (optional) (https://catalog.gmu.edu/mason-core/#justsocieties) [1]	
Integration Requirements	
Written Communication (upper-level) (https://catalog.gmu.edu/mason-core/#written-upper)	3
Writing Intensive (https://catalog.gmu.edu/mason-core/#wi) [2]	3
Mason Apex (https://catalog.gmu.edu/mason-core/#apex) [3]	3
Total Credits	**40**

1 In addition to covering content related to the designated category, Exploration level courses marked with a Just Societies "flag" are specifically designed to help students learn how to interact effectively with others from all walks of life, including those with backgrounds and beliefs that differ from their own. Students who wish to increase their knowledge and skills in this area may choose to enroll in a Just Societies-flagged course. Students interested in this approach to completing their Mason Core Exploration Requirements should work closely with their advisor to identify the appropriate Just Societies-flagged courses.

2 Most programs include the writing-intensive course designated for the major as part of the major requirements; this course is therefore not counted towards the total required for Mason Core.

3 Minimum 3 credits required.

Accelerated Master's

Forensic Science, BS/Forensic Science, Accelerated MS

Overview

Highly-qualified undergraduates may be admitted to the combined bachelor's and accelerated master's degree pathway program (accelerated master's or BAM) and obtain a BS in Forensic Science and an MS in Forensic Science (https://catalog.gmu.edu/colleges-schools/science/forensic-program/forensic-science-ms/) through the Forensic Science, BS/Forensic Science, Accelerated MS in an accelerated time-frame after satisfactory completion of a minimum of 144 credits.

See AP.6.7 Bachelor's/Accelerated Master's Degrees (https://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7) for policies related to this program.

Students in an accelerated master's degree program must fulfill all university
requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (https://catalog.gmu.edu/policies/academic/graduate-policies/).

BAM Pathway Admission Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (https://catalog.gmu.edu/admissions/graduate-policies/) and accelerated master's degree (https://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7-1) policies.

Students will be considered for admission into the BAM Pathway after completion of a minimum of 60 credits with an undergraduate GPA of at least 3.0 and:

1. Completion of the courses listed in the *Required Undergraduate Courses* table below,
2. Declaration of a master's concentration (details below).
3. Provide one letter of recommendation from a Forensic Science Program faculty member.
4. A detailed goal statement to include why the student is interested in the Forensic Science, MS, the student's career goals and professional aspirations, and a proposed area of interest for the final research project.

Required Undergraduate Courses

Code	Title	Credits
Courses must be completed with a minimum grade of B or higher:		
FRSC 200	Survey of Forensic Science	3
FRSC 201	Introduction to Criminalistics	3
FRSC 302	Forensic Trace Analysis (Mason Core) (https://catalog.gmu.edu/mason-core/)	3
FRSC 303	Forensic Evidence and Ethics	3
BIOL 213 & BIOL 215	Cell Structure and Function and Cell Structure and Function Laboratory	4
CHEM 211 & CHEM 213	General Chemistry I (Mason Core) (https://catalog.gmu.edu/mason-core/) and General Chemistry Laboratory I (Mason Core) (https://catalog.gmu.edu/mason-core/)	4
CHEM 212 & CHEM 214	General Chemistry II (Mason Core) (https://catalog.gmu.edu/mason-core/) and General Chemistry Laboratory II (Mason Core) (https://catalog.gmu.edu/mason-core/)	4

Students who are accepted into the BAM Pathway will be allowed to register for graduate-level courses after successful completion of a minimum of 75 undergraduate credits.

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.

Concentration Declaration

Students must declare their intended M.S. 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.

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 Master's Admission Requirements

Undergraduate students already admitted to the BAM Pathway will be admitted to the intended master's program, if they have met the following criteria that
will be verified:

- Submission of BAM Transition Form by the deadline stated on the form.
- Sufficient minimum 3.0 cumulative GPA for conferred undergraduate degree (which does not include any earned reserve graduate credits).
- Sufficient minimum 2.30 major area GPA. No more than three courses with a grade of 'D' (1.00) may be applied to the major area.
- Completion of approved advanced standing courses and any reserve graduate courses that have met the minimum grade requirement (please refer to AP.6.7 Bachelor's/Accelerated Master's Degrees (https://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7)).
- Successful completion of required minimum of 120 credits needed for undergraduate degree conferral (after exclusion of any satisfactory reserve graduate credits earned).
- Successfully meeting George Mason's requirements for undergraduate degree conferral (graduation) and timely submission of the application for graduation.

Accelerated Pathway Requirements

To maintain the integrity and quality of both the undergraduate and graduate degree programs, undergraduate students interested in taking graduate courses must choose from the following:

Advanced Standing Courses

Students must complete at least 3 credits from the following list of graduate-level courses, while in undergraduate status, up to a maximum of 12:

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
FRSC 540	Advanced Forensic Chemistry [4]	3
FRSC 541	Forensic Chemistry Laboratory [4]	1
FRSC 560	Advanced Forensic DNA Sciences [5]	3
FRSC 561	Forensic DNA Laboratory [5]	1
FRSC 600	Forensics Seminar [6]	1
FRSC 601	Quantitative Methods for Forensic Scientists [6]	3
FRSC 610	Forensic Research Project [6]	1

1. Can only be selected if FRSC 401 Crime Scene Investigations has been completed.
2. Can only be selected if FRSC 304 Forensic Chemistry 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.
4. Prior to enrolling in 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.
5. Prior to enrolling in FRSC 560 (https://catalog.gmu.edu/search/?P=FRSC%20560) Advanced Forensic DNA Sciences and FRSC 561 (https://catalog.gmu.edu/search/?P=FRSC%20561) 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.
6. Suggested for the Forensic Biology Analysis, or the Forensic Chemistry Analysis concentrations.

Reserve Graduate Credits

While in undergraduate student status, students may complete up to 6 credits of graduate-level coursework that will only count toward the graduate degree program. Reserve credits must be selected from the curated list of courses above.

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.

For more detailed information on coursework and timeline requirements, see AP.6.7 Bachelor's/Accelerated Master's Degree (https://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7) and AP.1.4.4 Graduate Course Enrollment by

Undergraduates (https://catalog.gmu.edu/policies/academic/registration-attendance/#ap-1-4-4).

Bachelor's Degree (selected)/Quantum Science and Engineering, Accelerated MS

Overview

Highly-qualified undergraduates may be admitted to the combined bachelor's and accelerated master's degree pathway program (BAM Pathway) and obtain a Bachelor of Science degree in any College of Science major and a Master of Science in Quantum Science and Engineering in an accelerated time-frame after satisfactory completion of a minimum of 138 credits.

This accelerated option is offered jointly by undergraduate Bachelor of Science programs in the College of Science and the Quantum Science and Engineering, MS program, which is jointly offered by the College of Science (https://catalog.gmu.edu/colleges-schools/science/) and the College of Engineering and Computing (https://catalog.gmu.edu/colleges-schools/engineering-computing/).

Students in an accelerated master's degree program must fulfill all university
requirements for the master's degree. See AP.6.7 Bachelor's/Accelerated Master's Degree (https://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7) for policies related to this program. For policies governing all graduate degrees, see AP.6 Graduate Policies (https://catalog.gmu.edu/policies/academic/graduate-policies/).

BAM Pathway Admission Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (https://catalog.gmu.edu/admissions/graduate-policies/) and accelerated master's degree policies (https://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7).

Students must major in a College of Science Bachelor of Science program and will be considered for admission into the BAM Pathway after completion of a minimum of 60 credits.

Students who are accepted into the BAM Pathway will be allowed to register for graduate level courses after successful completion of a minimum of 75 undergraduate credits.

Accelerated Master's Admission Requirements

Undergraduate students already admitted to the BAM Pathway will be admitted to the intended master's program if they have met the following criteria that will be verified:

- Submission of BAM Transition Form by stated deadline.
- Sufficient minimum 3.0 cumulative GPA for conferred undergraduate degree (which does not include any earned reserve graduate credits).
- Completion of approved advanced standing courses and any reserve graduate courses; please refer to policy A.P. 6.7 (https://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7).
- Successful completion of required minimum of 120 credits needed for undergraduate degree conferral (after exclusion any satisfactory reserve graduate credits earned).
- Successfully meeting George Mason's requirements for undergraduate degree conferral (graduation) and timely submitting the application for graduation.

Accelerated Pathway Requirements

To maintain the integrity and quality of both the undergraduate and graduate degree programs, undergraduate students interested in taking graduate courses must choose from the following:

Advanced Standing Courses

Students must complete at least 3 credits from the following list of graduate-level courses while in undergraduate status, up to a maximum of 12.

Students are encouraged to consult with both their undergraduate advisor and the Quantum Science and Engineering, MS advisor:

Code	Title	Credits
Select from the following options:		**3-12**
Up to one 500-600 level specialized course from the following:		
ASTR 601	Computer Simulation in Astronomy	
BINF 690	Numerical Methods for Bioinformatics	
CS 583	Analysis of Algorithms	
CS 630	Advanced Algorithms	
CS 635	Foundations of Parallel Computation	
CSI 690	Numerical Methods	
ECE 511	Computer Architecture	
ECE 547	Applied Cryptography	
ECE 633	Error Control Coding	
ECE 647	Post-Quantum Cryptography	
GGS 579	Remote Sensing	
MATH 625	Numerical Linear Algebra	
MATH 685	Numerical Analysis	
MATH 686	Numerical Solutions of Differential Equations	
OR 541	Operations Research: Deterministic Optimization	
OR 542	Operations Research: Stochastic Models	
OR 646	Stochastic Optimization	
PHYS 510	Computational Physics I	
PHYS 613	Computational Physics II	
Remaining credits are selected from the following:		
QSE 500	Ideas in Quantum Science and Technology	
QSE 501	Mathematical Foundations of QSE [1]	
QSE 502	Programming Foundations of QSE [1]	
QSE 505	Classical and Quantum Information Theory	
QSE 511	Quantum Algorithms	
QSE 520	Applications of Quantum Technology	

QSE 570	Quantum Computing System Design
or ECE 570	Quantum Computing System Design

Reserve Credit Courses

Students may complete up to 6 credits while in undergraduate student status, of graduate-level coursework from the list below that will only count toward the graduate degree program.

Code	Title	Credits
Select up to 6 credits of not previously completed courses from the following:		**6**
QSE 500	Ideas in Quantum Science and Technology	
QSE 501	Mathematical Foundations of QSE [1]	
QSE 502	Programming Foundations of QSE [1]	
QSE 505	Classical and Quantum Information Theory	
QSE 511	Quantum Algorithms	
QSE 520	Applications of Quantum Technology	
QSE 570	Quantum Computing System Design	
or ECE 570	Quantum Computing System Design	

[1] As only one of these courses count for Quantum Science and Engineering, MS, credit, and these courses may not be necessary for all students, consult with an academic advisor prior to enrolling in QSE 501 Mathematical Foundations of QSE or QSE 502 Programming Foundations of QSE.

For more detailed information on coursework and timeline requirements, see AP.6.7 Bachelor's/Accelerated Master's Degree (https://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7) and AP.1.4.4 Graduate Course Enrollment by Undergraduates (https://catalog.gmu.edu/policies/academic/registration-attendance/#ap-1-4-4).