

ENVIRONMENTAL SCIENCE, BS

Banner Code: SC-BS-EVSC

Dr. Younsung Kim, Undergraduate Program Director

Email: espug@gmu.edu

Website: <https://science.gmu.edu/academics/departments-units/environmental-science-policy/environmental-science-bs>

The Environmental Science, BS provides students with rigorous training in the fundamental science of the environment and in the application of key scientific principles to the analysis of environmental processes and problems. Subsequently, the program introduces students to the development of practical responses to those problems. The program covers ecological systems, environmental policy, fundamental techniques of environmental science and engineering, protection and improvement of environmental quality, and public and private decision-making processes. Graduates of the program are prepared to undertake careers in a variety of environmental science fields and are also qualified to pursue advanced scientific/professional education.

This is a Green Leaf program (<https://catalog.gmu.edu/student-services/green-leaf-programs-courses/>).

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/>).

Students can fulfill the writing intensive requirement for this major by taking EVPP 337 Environmental Policy Making in Developing Countries (Mason Core) (<https://catalog.gmu.edu/mason-core/>).

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

This is a Green Leaf program.

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

Please note that all CONS courses are offered through the Smithsonian-Mason Semester (<https://smconservation.gmu.edu/>).

Core Requirements

All students must complete the following core courses:

Environmental Science

Code	Title	Credits
EVPP 210	Environmental Biology: Molecules and Cells ¹	4
EVPP 301	Environmental Science: Biological Diversity and Ecosystems	4
EVPP 302	Environmental Science: Biomes and Human Dimensions	4
EVPP 305 & EVPP 306	Environmental Microbiology Essentials and Environmental Microbiology Essentials Laboratory	4
EVPP 337	Environmental Policy Making in Developing Countries (Mason Core) (https://catalog.gmu.edu/mason-core/) ²	3
EVPP 361	Introduction to Environmental Policy	3
EVPP 377	Applied Ecology	3
EVPP 430	Fundamentals of Environmental Geographic Information Systems	3
BIOL 214 or STAT 250	Biostatistics for Biology Majors ³ or Introductory Statistics I (Mason Core) (https://catalog.gmu.edu/mason-core/)	3-4
Select one from the following:		3
EVPP 336	Tackling Wicked Problems in Society the Environment (Mason Core) (https://catalog.gmu.edu/mason-core/)	
EVPP 338	Economics of Environmental Policy	
EVPP 362	Intermediate Environmental Policy	
EVPP 475	Global Biodiversity Governance	
Select one from the following:		3-4
EVPP 425	RS: Ecological Sustainability (Mason Core) (https://catalog.gmu.edu/mason-core/)	
EVPP 480	Sustainability in Action (Mason Core) (https://catalog.gmu.edu/mason-core/)	

CONS 490	RS: Integrated Conservation Strategies (Mason Core) (https://catalog.gmu.edu/mason-core/)	
Total Credits		37-39

- ¹ The requirement for EVPP 210 Environmental Biology: Molecules and Cells can be fulfilled for a student who received transfer credit for both BIOL 213 Cell Structure and Function and BIOL 215 Cell Structure and Function Laboratory.
- ² Fulfills the writing intensive requirement.
- ³ BIOL 214 Biostatistics for Biology Majors is recommended by the Department of Environmental Science and Policy.

Chemistry

Code	Title	Credits
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

Total Credits **8**

Mathematics

Code	Title	Credits
Select one of the following two options: 4-6		
Option One: Select one course from the following:		
MATH 111	Linear Mathematical Modeling (Mason Core) (https://catalog.gmu.edu/mason-core/)	
MATH 113	Analytic Geometry and Calculus I (Mason Core) (https://catalog.gmu.edu/mason-core/)	
MATH 114	Analytic Geometry and Calculus II	
Option Two: Complete the following courses:		
MATH 123	Calculus with Algebra/Trigonometry, Part A	
MATH 124	Calculus with Algebra/Trigonometry, Part B (Mason Core) (https://catalog.gmu.edu/mason-core/)	

Total Credits **4-6**

Geology

Code	Title	Credits
GEOL 102 & GEOL 104	Historical Geology (Mason Core) (https://catalog.gmu.edu/mason-core/) and Historical Geology Laboratory (Mason Core) (https://catalog.gmu.edu/mason-core/)	4

Total Credits **4**

Information Technology

Code	Title	Credits
CDS 130	Computing for Scientists (Mason Core) (https://catalog.gmu.edu/mason-core/)	3

Total Credits **3**

Concentration in Conservation (CNSV)

Code	Title	Credits
Select at least 21 credits from the following: ¹		21

EVPP 115	Special Topics in Environmental Science (May be repeated only when topics vary.)	
EVPP 318	Conservation Biology	
EVPP 350	Freshwater Ecosystems	
EVPP 381	Nature and Culture in Global Wetlands (Mason Core) (https://catalog.gmu.edu/mason-core/)	
EVPP 395	Undergraduate Research in Environmental Science and Policy	
EVPP 396	Directed Topic in Environmental Science and Policy ²	
EVPP 419	Marine Mammal Biology and Conservation	
EVPP 420	Marine Mammal Biology and Conservation Field Course	
EVPP 421	Marine Conservation	
EVPP 425	RS: Ecological Sustainability (Mason Core) (https://catalog.gmu.edu/mason-core/)	
EVPP 427	Conservation Medicine	
EVPP 428	Planetary Health	
EVPP 440	Field Environmental Science ²	
EVPP 445	Principles of Environmental Toxicology	
EVPP 475	Global Biodiversity Governance	
EVPP 485	Quantitative Data Analysis for Environmental Scientists	
EVPP 490	Special Topics in Environmental Science and Policy	
EVPP 494	Internship	
BIOL 300	BioDiversity	
BIOL 435	Selected Topics in Biology ²	
GG5 303	Geography of Resource Conservation (Mason Core) (https://catalog.gmu.edu/mason-core/)	
GG5 307	Geographic Approaches for Sustainable Development	
CONS 320	Conservation in Practice	
CONS 400	Conservation Seminar	
CONS 401	Conservation Theory	
CONS 402	Applied Conservation	
CONS 404	Biodiversity Monitoring	
CONS 405	Landscape and Macrosystems Ecology	

CONS 406	Small Population Management
CONS 410	Human Dimensions in Conservation (Mason Core) (https://catalog.gmu.edu/mason-core/)
CONS 490	RS: Integrated Conservation Strategies (Mason Core) (https://catalog.gmu.edu/mason-core/) (Synthesis course)
CONS 491	RS: Conservation Management Planning (Mason Core) (https://catalog.gmu.edu/mason-core/)
CONS 496	Research in Conservation (Mason Core) (https://catalog.gmu.edu/mason-core/)
CONS 497	Special Topics in Conservation
CONS 499	Independent Study/Research
INTS 311	The Mysteries of Migration: Consequences for Conservation (Mason Core) (https://catalog.gmu.edu/mason-core/)
Alternative courses may be taken as approved by the program coordinator.	

Total Credits **21**

¹ Credits must be unique to this concentration and are not permitted to share with the Core Requirements in this degree. Students should consult with an advisor to ensure that they do not exceed allowable credits of EVPP 395 and EVPP 494.

² In a relevant topic.

Concentration in Ecological Science (ECSI)

Code	Title	Credits
Select at least 21 unique credits from the following: ¹ 21		
EVPP 115	Special Topics in Environmental Science (May be repeated only when topics vary.)	
EVPP 309	Oceanography	
EVPP 318	Conservation Biology	
EVPP 350	Freshwater Ecosystems	
EVPP 381	Nature and Culture in Global Wetlands (Mason Core) (https://catalog.gmu.edu/mason-core/)	
EVPP 395	Undergraduate Research in Environmental Science and Policy	
EVPP 396	Directed Topic in Environmental Science and Policy ²	
EVPP 408	Mushrooms, Molds and Society	
EVPP 425	RS: Ecological Sustainability (Mason Core) (https://catalog.gmu.edu/mason-core/)	
EVPP 427	Conservation Medicine	
EVPP 428	Planetary Health	
EVPP 429	Environmental Science Communication	
EVPP 434	Food-Energy-Water-Climate Nexus	
EVPP 435	The Diversity of Fishes	

EVPP 440	Field Environmental Science ²
EVPP 441	Protist Diversity and Ecology
EVPP 445	Principles of Environmental Toxicology
EVPP 449	Marine Ecology
EVPP 485	Quantitative Data Analysis for Environmental Scientists
EVPP 490	Special Topics in Environmental Science and Policy
EVPP 494	Internship
BIOL 300	BioDiversity
BIOL 345	Plant Ecology
BIOL 435	Selected Topics in Biology ²
BIOL 459	Fungi and Ecosystems
GEOL 305	Environmental Geology (Mason Core) (https://catalog.gmu.edu/mason-core/)
GEOL 306	Soil Science
GGG 307	Geographic Approaches for Sustainable Development
CEIE 401	Sustainable Land Development
CEIE 440	Water Supply and Distribution
CEIE 444	Water Resources Planning and Design
CEIE 453	Water and Wastewater Treatment Processes
Alternative courses may be taken as approved by the program coordinator.	

Total Credits **21**

¹ Credits must be unique to this concentration and are not permitted to share with the Core Requirements in this degree. Students should consult with an advisor to ensure that they do not exceed allowable credits of EVPP 395 and EVPP 494.

² In a relevant topic.

Concentration in Environmental Health (EVHL)

Code	Title	Credits
Required Courses		
EVPP 427	Conservation Medicine	3
EVPP 445	Principles of Environmental Toxicology	3
Course Options		
Select at least 15 credits from the following ¹ 15		
EVPP 115	Special Topics in Environmental Science (May be repeated only when topics vary.)	
EVPP 395	Undergraduate Research in Environmental Science and Policy	
EVPP 396	Directed Topic in Environmental Science and Policy ²	
EVPP 428	Planetary Health	
EVPP 440	Field Environmental Science ²	
EVPP 441	Protist Diversity and Ecology	

EVPP 485	Quantitative Data Analysis for Environmental Scientists
EVPP 490	Special Topics in Environmental Science and Policy
EVPP 494	Internship
BIOL 305 & BIOL 306	Biology of Microorganisms and Biology of Microorganisms Laboratory
BIOL 402	Applied and Industrial Microbiology
BIOL 404	Medical Microbiology
BIOL 465	Histology
CLIM 319	Air Pollution
GG5 302	Global Environmental Hazards
GG5 304	Population Geography (Mason Core) (https://catalog.gmu.edu/mason-core/)
GG5 307	Geographic Approaches for Sustainable Development
GCH 205	Global Health (Mason Core) (https://catalog.gmu.edu/mason-core/)
GCH 360	Health and Environment
Alternative courses may be taken as approved by the program coordinator.	
Total Credits	21

¹ Credits must be unique to this concentration and are not permitted to share with the Core Requirements in this degree. Students should consult with an advisor to ensure that they do not exceed allowable credits of EVPP 395 and EVPP 494.

² In a relevant topic.

Concentration in Human and Ecosystem Response to Climate Change (HERC)

Code	Title	Credits
Course Options		
Select 21 unique credits from the following courses; at least 15 of these credits must be in EVPP-prefixed courses: ¹		21
EVPP 115	Special Topics in Environmental Science (May be repeated only when topics vary.)	
EVPP 309	Oceanography	
EVPP 336	Tackling Wicked Problems in Society the Environment (Mason Core) (https://catalog.gmu.edu/mason-core/)	
EVPP 338	Economics of Environmental Policy	
EVPP 362	Intermediate Environmental Policy	
EVPP 381	Nature and Culture in Global Wetlands (Mason Core) (https://catalog.gmu.edu/mason-core/)	
EVPP 395	Undergraduate Research in Environmental Science and Policy	
EVPP 396	Directed Topic in Environmental Science and Policy	

EVPP 425	RS: Ecological Sustainability (Mason Core) (https://catalog.gmu.edu/mason-core/)
EVPP 427	Conservation Medicine
EVPP 428	Planetary Health
EVPP 429	Environmental Science Communication
EVPP 432	Energy Policy
EVPP 434	Food-Energy-Water-Climate Nexus
EVPP 436	Politics of Climate Change Governance
EVPP 440	Field Environmental Science
EVPP 475	Global Biodiversity Governance
EVPP 445	Principles of Environmental Toxicology
EVPP 465	Coral Reef Ecology, Health, and Conservation
EVPP 466	Coral Reef Ecology, Health, and Conservation Lab/Field Experience
EVPP 485	Quantitative Data Analysis for Environmental Scientists
EVPP 490	Special Topics in Environmental Science and Policy
EVPP 494	Internship
CLIM 101	Global Warming: Weather, Climate, and Society (Mason Core) (https://catalog.gmu.edu/mason-core/)
CLIM 111	Introduction to the Fundamentals of Atmospheric Science (Mason Core) (https://catalog.gmu.edu/mason-core/)
CLIM 112	Introduction to the Fundamentals of Atmospheric Science Lab (Mason Core) (https://catalog.gmu.edu/mason-core/)
CLIM 312	Physical Climatology
CLIM 314	Severe and Extreme Weather
CLIM 319	Air Pollution
CLIM 390	Topics in Climate Research
CLIM 412	Physical Oceanography
CLIM 438	Atmospheric Chemistry
CLIM 456	Introduction to Atmospheric Radiation
GEOL 309	Oceanography
GG5 121	Dynamic Atmosphere and Hydrosphere (Mason Core) (https://catalog.gmu.edu/mason-core/)
GG5 302	Global Environmental Hazards
GG5 304	Population Geography (Mason Core) (https://catalog.gmu.edu/mason-core/)
GG5 307	Geographic Approaches for Sustainable Development
GG5 309	Introduction to Weather and Climate
GG5 312	Physical Climatology
GG5 314	Severe and Extreme Weather

GGG 321	Biogeography
GGG 354	Data Analysis and Global Change Detection Techniques
PHIL 243	Global Environmental Ethics (Mason Core) (https://catalog.gmu.edu/mason-core/)
PHIL 343	Topics in Environmental Philosophy (Mason Core) (https://catalog.gmu.edu/mason-core/)
Alternative courses may be taken as approved by the program coordinator.	

Total Credits **21**

¹ Credits must be unique to this concentration and are not permitted to share with the Core Requirements in this degree. Students should consult with an advisor to ensure that they do not exceed allowable credits of EVPP 395 and EVPP 494.

Concentration in Marine, Estuarine and Freshwater Ecology (MEFC)

Code	Title	Credits
Required Courses		
EVPP 309	Oceanography	3
EVPP 350	Freshwater Ecosystems	4
EVPP 421	Marine Conservation	3
EVPP 449	Marine Ecology	3
Course Options		
Select at least 8 credits from the following: ¹		8
EVPP 115	Special Topics in Environmental Science (May be repeated only when topics vary.)	
EVPP 318	Conservation Biology	
EVPP 363	Coastal Morphology and Processes	
EVPP 395	Undergraduate Research in Environmental Science and Policy	
EVPP 396	Directed Topic in Environmental Science and Policy ²	
EVPP 419	Marine Mammal Biology and Conservation	
EVPP 420	Marine Mammal Biology and Conservation Field Course	
EVPP 427	Conservation Medicine	
EVPP 434	Food-Energy-Water-Climate Nexus	
EVPP 435	The Diversity of Fishes	
EVPP 440	Field Environmental Science ²	
EVPP 441	Protist Diversity and Ecology	
EVPP 445	Principles of Environmental Toxicology	
EVPP 475	Global Biodiversity Governance	
EVPP 485	Quantitative Data Analysis for Environmental Scientists	
EVPP 490	Special Topics in Environmental Science and Policy	
EVPP 494	Internship	
EVPP 563	Coastal Morphology and Processes	

BIOL 331	Invertebrate Zoology
BIOL 480	The Diversity of Fishes
GEOL 364	Marine Geology
GGG 307	Geographic Approaches for Sustainable Development
CLIM 412	Physical Oceanography
Alternative courses may be taken as approved by the program coordinator.	

Total Credits **21**

¹ Credits must be unique to this concentration and are not permitted to share with the Core Requirements in this degree. Students should consult with an advisor to ensure that they do not exceed allowable credits of EVPP 395 and EVPP 494.

² In a relevant topic.

Concentration in Wildlife Conservation and Management (WICM)

Code	Title	Credits
Wildlife Courses		
Select 6 credits from the following: ¹		6
EVPP 318	Conservation Biology	
EVPP 445	Principles of Environmental Toxicology	
EVPP 490	Special Topics in Environmental Science and Policy	
Select 15 credits from the following: ¹		15
EVPP 115	Special Topics in Environmental Science (May be repeated only when topics vary.)	
EVPP 395	Undergraduate Research in Environmental Science and Policy ²	
EVPP 396	Directed Topic in Environmental Science and Policy ²	
EVPP 419	Marine Mammal Biology and Conservation	
EVPP 427	Conservation Medicine	
EVPP 428	Planetary Health	
EVPP 435	The Diversity of Fishes	
EVPP 445	Principles of Environmental Toxicology	
EVPP 475	Global Biodiversity Governance	
EVPP 485	Quantitative Data Analysis for Environmental Scientists	
EVPP 490	Special Topics in Environmental Science and Policy	
EVPP 494	Internship ²	
BIOL 304	Plant Biology	
BIOL 344	Plant Diversity and Evolution	
BIOL 345	Plant Ecology	
BIOL 311	General Genetics	
& BIOL 313	and General Genetics Laboratory	
BIOL 326	Animal Physiology	
BIOL 331	Invertebrate Zoology	
BIOL 332	Insect Biology	

BIOL 437	Ornithology
BIOL 438	Mammalogy
BIOL 439	Herpetology
BIOL 454	Marine Mammal Biology and Conservation
BIOL 460	Infectious Diseases Wildlife
RMGT 300	People With Nature
RMGT 302	Park Management and Operations
RMGT 402	Human Behavior in Natural Environments
Total Credits	
21	

¹ Credits must be unique to this concentration and are not permitted to share with the Core Requirements in this degree. Students should consult with an advisor to ensure that they do not exceed allowable credits of EVPP 395 and EVPP 494.

² In a topic relevant to wildlife.

Mason Core and Elective Credits

In order to meet a minimum of 120 credits, this degree requires an additional 39-43 credits, 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 elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

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 course 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

Bachelor's Degree (selected)/ Environmental Science and Policy, Accelerated MS

Overview

This bachelor's/accelerated master's degree program allows academically strong undergraduates with a commitment to advance their education to obtain a Green Leaf-designated (<https://catalog.gmu.edu/student-services/green-leaf-programs-courses/>) bachelor's degree and the Environmental Science and Policy, MS (<https://catalog.gmu.edu/colleges-schools/science/environmental-policy/environmental-science-policy-ms/>) degrees within an accelerated timeframe. Upon completion of this 141-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 five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (<https://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-7>). For policies governing all graduate degrees, see AP.6 Graduate Policies (<https://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>).

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 the Graduate Admission Policies (<https://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>).

The GRE exam is not required for this accelerated master's program.

Students should submit three letters of recommendation (at least one from a former professor or someone with a PhD), a recent resume, a statement of interest/research goals and interests (including information on the candidate's proposed MS research), and a letter from their advisor (Prospective Advisor Form (<https://science.gmu.edu/media/prospective-advisor-form-dnp-form-revised-mar-2023>)) stating that the advisor agrees to take on the candidate as an MS student, how the candidate would be a good fit for them and why candidate's research topic would be suitable.

Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (<https://catalog.gmu.edu/student-services/green-leaf-programs-courses/>) major or minor may apply to this accelerated master's program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (<https://catalog.gmu.edu/mason-core/>) and CHEM 212 General Chemistry II (Mason Core) (<https://catalog.gmu.edu/mason-core/>) and three semesters of biology, including a course in ecology, or the equivalent, for example:

Code	Title	Credits
Select one of the following options:		
Option 1:		
BIOL 213	Cell Structure and Function	13
BIOL 214	Biostatistics for Biology Majors	
BIOL 308	Foundations of Ecology and Evolution	
Option 2:		
EVPP 210	Environmental Biology: Molecules and Cells	6 credits of BIOL or CONS electives
EVPP 301	Environmental Science: Biological Diversity and Ecosystems	
EVPP 302	Environmental Science: Biomes and Human Dimensions	
EVPP 305	Environmental Microbiology Essentials	
EVPP 306	Environmental Microbiology Essentials Laboratory	
Option 3:		
CONS 401	Conservation Theory	6 credits of BIOL or CONS electives
CONS 402	Applied Conservation	

Graduate Advisor

By at least the beginning of their senior year, students should seek out a faculty member in the Department of Environmental Science and Policy (<https://catalog.gmu.edu/colleges-schools/science/environmental-policy/#facultytext>) who is willing to serve as their advisor. This advisor will aid the student in choosing the appropriate graduate courses to take and help to prepare the student for graduate studies. Admission into a research-oriented master's concentration is dependent upon securing the agreement of a faculty advisor. Faculty from a variety of departments and colleges at George Mason University (called "program faculty") can serve as master's advisors. Potential students are encouraged to speak with the graduate program coordinator in the department to obtain guidance on this issue.

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://science.gmu.edu/about/contact>) by the last day to add classes of their final undergraduate semester.

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 Credits

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 the maximum 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.

Graduate Course Suggestions

The following list of suggested courses is provided for general reference. To ensure an efficient route to graduation and post-graduation readiness, students are strongly encouraged to meet with an advisor before registering for graduate-level courses.

Code	Title	Credits
EVPP 518	Conservation Biology	3
EVPP 529	Environmental Science Communication	3
EVPP 621	Overview of Biodiversity Conservation	3
EVPP 635	Environment and Society	3

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	

GG5 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>).