Program Change Request

Date Submitted: 05/24/24 1:09 pm

Viewing: SC-BS-EVSC : Environmental Science, BS

Last approved: 03/22/24 9:54 pm

Last edit: 07/11/24 10:15 am

Changes proposed by: ykih

Catalog Pages Using this Program Environmental Science, BS

Are you completing this form on someone else's behalf?
No

Effective Catalog:	2024-2025
Effective Catalog:	2024-2025

- Program Level: Undergraduate
- Program Type: Bachelor's
- Degree Type: Bachelor of Science

Title:

Environmental Science, BS

Banner Title: BS Environmental Science

Registrar/OAPI Use Approved Only – SCHEV Status

Registrar's Office Fall 2018 Use Only –

Program Start Term Registrar/OAPI Use Only – SCHEV

Letter

Registrar/OAPI Use Only – SACSCOC Status

Concentration(s):

In Workflow

- 1. ESP UG Committee
- 2. ESP Chair
- 3. SC Curriculum Committee
- 4. SC Assistant Dean
- 5. Assoc Provost-Undergraduate
- 6. Registrar-Programs

Approval Path

- 1. 05/24/24 1:11 pm Younsung Kim (ykih): Approved for ESP UG Committee
- 2. 05/24/24 1:24 pm Amy Fowler (afowler6): Approved for ESP Chair

History

- 1. Nov 1, 2017 by clmig-jwehrheim
- 2. Mar 1, 2018 by Jennifer Bazaz Gettys (jbazaz)
- 3. Mar 13, 2018 by Jennifer Bazaz Gettys (jbazaz)
- 4. Mar 26, 2018 by rzachari
- 5. Nov 7, 2018 by Jennifer Bazaz Gettys (jbazaz)

- 6. Feb 8, 2019 by scheselk
- 7. Nov 13, 2020 by Tory Sarro (vsarro)
- 8. Dec 21, 2020 by Jennifer Bazaz Gettys (jbazaz)
- 9. Dec 6, 2021 by Jennifer Bazaz Gettys (jbazaz)
- 10. May 10, 2022 by Jennifer Bazaz Gettys (jbazaz)
- 11. Apr 6, 2023 by Jennifer Bazaz Gettys (jbazaz)
- 12. Sep 1, 2023 by Younsung Kim (ykih)
- 13. Mar 22, 2024 by Jennifer Bazaz Gettys (jbazaz)

	Associated Concentrations	Registrar's Office Use Only: Concentration Code
1	Conservation	CNSV
2	Ecological Science	ESCI
3	Environmental Health	EVHL
4	Human and Ecosystem Response to Climate Change	HERC
5	Marine, Estuarine and Freshwater Ecology	MEFC
6	Wildlife Conservation and Management	WICM

Registrar/IRR Use
Only –
Concentration CIP
CodeCollege of ScienceCollege/School:College of ScienceDepartment /
Academic Unit:Environmental Science & Policy

Jointly Owned No Program?

Justification

What: The program update request is to remove the experiential learning requirement. Why: Students need to take EVPP 494 Internship or EVPP 395 Independent research course to fulfill the requirement. CONS 496 Research in Conservation or CONS 498 Internship is available to students who register for the Smithsonian Semester at the SMSC. The requirement creates financial burdens for students who do non-paid internships but pay credit-based charges to the university and causes delays in graduation. Also, experiential learning is covered in the major's capstone courses, such as EVPP 378 or EVPP 480.

Total CreditsTotal credits: minimum 120Required:

Registrar's Office Use Only - Program Code:

SC-BS-EVSC

Registrar/IRR Use03.0104 - Environmental Science.Only – Program CIPCode

Admission Requirements:

Admissions

University-wide admissions policies can be found in the <u>Undergraduate Admissions Policies</u> section of this catalog. To apply for this program, please complete the <u>George Mason University Admissions Application</u>.

Program-Specific Policies:

Policies

Students must fulfill all <u>Requirements for Bachelor's Degrees</u>, including the <u>Mason Core</u>.

Students can fulfill the writing intensive requirement for this major by taking <u>EVPP 337</u> Environmental Policy Making in Developing Countries (<u>Mason Core</u>).

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies.

Degree Requirements:

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.

Core Requirements

All students must complete the following core courses:

nvironmental Scie	nce	
<u>EVPP 210</u>	Environmental Biology: Molecules and Cells	4
<u>EVPP 301</u>	Environmental Science: Biological Diversity and Ecosystems	4
<u>EVPP 302</u>	Environmental Science: Biomes and Human Dimensions	4
<u>EVPP 305</u>	Environmental Microbiology Essentials	3
<u>EVPP 306</u>	Environmental Microbiology Essentials Laboratory	1
<u>EVPP 337</u>	Environmental Policy Making in Developing Countries (Mason Core) ¹	3
<u>EVPP 361</u>	Introduction to Environmental Policy	3
<u>EVPP 377</u>	Applied Ecology	3
<u>EVPP 430</u>	Fundamentals of Environmental Geographic Information Systems	3
<u>BIOL 214</u>	Biostatistics for Biology Majors ²	4
or <u>STAT 250</u>	Introductory Statistics I <u>(Mason Core)</u>	
Select one from the	following:	3
<u>EVPP 336</u>	Tackling Wicked Problems in Society the Environment (Mason Core)	
<u>EVPP 338</u>	Economics of Environmental Policy	
<u>EVPP 362</u>	Intermediate Environmental Policy	
<u>EVPP 475</u>	Global Biodiversity Governance	
Select one from the	following:	3-4
<u>EVPP 378</u>	RS: Ecological Sustainability <u>(Mason Core)</u>	
<u>EVPP 480</u>	Sustainability in Action <u>(Mason Core)</u>	
<u>CONS 490</u>	RS: Integrated Conservation Strategies (Mason Core)	
Total Credits		38-39
ulfills the writing inte	ensive requirement.	
<u>IOL 214</u> Biostatistics Chemistry	for Biology Majors is recommended by the Department of Environmental Science	and Policy.
<u>CHEM 211</u>	General Chemistry I <u>(Mason Core)</u>	3
<u>CHEM 213</u>	General Chemistry Laboratory I <u>(Mason Core)</u>	1
<u>CHEM 212</u>	General Chemistry II <u>(Mason Core)</u>	3

<u>CHEM 214</u>

General Chemistry Laboratory II (Mason Core)

Mathematics

Total Credits

Select one of the fo	ollowing two options:	4-6
Option One: Select	one course from the following:	
<u>MATH 111</u>	Linear Mathematical Modeling <u>(Mason Core)</u>	
<u>MATH 113</u>	Analytic Geometry and Calculus I (Mason Core)	
<u>MATH 114</u>	Analytic Geometry and Calculus II	
Option Two: Compl	lete the following courses:	
<u>MATH 123</u>	Calculus with Algebra/Trigonometry, Part A	
<u>MATH 124</u>	Calculus with Algebra/Trigonometry, Part B <u>(Mason Core)</u>	
Total Credits		4-6
Geology		
<u>GEOL 102</u>	Historical Geology <u>(Mason Core)</u>	4
& <u>GEOL 104</u>	and Historical Geology Laboratory <u>(Mason Core)</u>	
Total Credits		4
Information Techno	ology Experiential Learning	
Select at least one	from the following:	1-6
EVPP 395	Undergraduate Research in Environmental Science and Policy	
EVPP 494	Internship	
CONS 496	Research in Conservation (Mason Core)	
CONS 498	Internship	
Total Credits		θ
<u>CDS 130</u>	Computing for Scientists (Mason Core)	3
Total Credits		3

Concentration in Conservation (CNSV)

Select at least 21 credits from the following: ¹		21
<u>EVPP 318</u>	Conservation Biology	
<u>EVPP 350</u>	Freshwater Ecosystems	
<u>EVPP 378</u>	RS: Ecological Sustainability <u>(Mason Core)</u>	

SC-BS-EVSC: Environmental Science, BS

8/20/24, 11:15 AM	SC-BS-EVSC: Environmental Science, BS
<u>EVPP 381</u>	Nature and Culture in Global Wetlands <u>(Mason Core)</u>
<u>EVPP 395</u>	Undergraduate Research in Environmental Science and Policy
<u>EVPP 396</u>	Directed Topic in Environmental Science and Policy ²
<u>EVPP 419</u>	Marine Mammal Biology and Conservation
<u>EVPP 420</u>	Marine Mammal Biology and Conservation Field Course
<u>EVPP 421</u>	Marine Conservation
<u>EVPP 427</u>	Conservation Medicine
<u>EVPP 428</u>	Planetary Health
<u>EVPP 440</u>	Field Environmental Science ²
<u>EVPP 445</u>	Principles of Environmental Toxicology
<u>EVPP 475</u>	Global Biodiversity Governance
<u>EVPP 490</u>	Special Topics in Environmental Science and Policy
<u>EVPP 494</u>	Internship
<u>BIOL 300</u>	BioDiversity
<u>BIOL 435</u>	Selected Topics in Biology ²
<u>GGS 303</u>	Geography of Resource Conservation (Mason Core)
<u>GGS 307</u>	Geographic Approaches for Sustainable Development
<u>CONS 320</u>	Conservation in Practice
<u>CONS 400</u>	Conservation Seminar
<u>CONS 401</u>	Conservation Theory
<u>CONS 402</u>	Applied Conservation
<u>CONS 404</u>	Biodiversity Monitoring
<u>CONS 405</u>	Landscape and Macrosystems Ecology
<u>CONS 406</u>	Small Population Management
<u>CONS 410</u>	Human Dimensions in Conservation <u>(Mason Core)</u>
<u>CONS 490</u>	RS: Integrated Conservation Strategies (Mason Core) (Synthesis course)
<u>CONS 491</u>	RS: Conservation Management Planning (Mason Core)
<u>CONS 496</u>	Research in Conservation (Mason Core)
<u>CONS 497</u>	Special Topics in Conservation

https://workingcatalog.gmu.edu/courseleaf/approve/?role=SC Curriculum Committee

<u>CONS 499</u>	Independent Study/Research

<u>INTS 311</u>

311 The Mysteries of Migration: Consequences for Conservation (Mason Core)

Alternative courses may be taken as approved by the program coordinator.

Total Credits

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)

Select at least 21 unique credits from the following: ¹ 21		
<u>EVPP 309</u>	Oceanography	
<u>EVPP 318</u>	Conservation Biology	
<u>EVPP 350</u>	Freshwater Ecosystems	
<u>EVPP 378</u>	RS: Ecological Sustainability <u>(Mason Core)</u>	
<u>EVPP 381</u>	Nature and Culture in Global Wetlands (Mason Core)	
<u>EVPP 395</u>	Undergraduate Research in Environmental Science and Policy	
<u>EVPP 396</u>	Directed Topic in Environmental Science and Policy ²	
<u>EVPP 408</u>	Mushrooms, Molds and Society	
<u>EVPP 427</u>	Conservation Medicine	
<u>EVPP 428</u>	Planetary Health	
<u>EVPP 429</u>	Environmental Science Communication	
<u>EVPP 434</u>	Food-Energy-Water-Climate Nexus	
<u>EVPP 440</u>	Field Environmental Science ²	
<u>EVPP 445</u>	Principles of Environmental Toxicology	
<u>EVPP 449</u>	Marine Ecology	
<u>EVPP 490</u>	Special Topics in Environmental Science and Policy	
<u>EVPP 494</u>	Internship	
<u>BIOL 300</u>	BioDiversity	

0/20/24, 11:10/10	
BIOL 345	Plant Ecology
BIOL 435	Selected Topics in Biology ²
<u>BIOL 459</u>	Fungi and Ecosystems
<u>GEOL 305</u>	Environmental Geology <u>(Mason Core)</u>
<u>GEOL 306</u>	Soil Science
<u>GGS 307</u>	Geographic Approaches for Sustainable Development
<u>CEIE 401</u>	Sustainable Land Development
<u>CEIE 440</u>	Water Supply and Distribution
<u>CEIE 444</u>	Water Resources Planning and Design
<u>CEIE 453</u>	Water and Wastewater Treatment Processes
Alternative cour	ses may be taken as approved by the program coordinator

Alternative courses may be taken as approved by the program coordinator.

Total Credits

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)

Required Courses

<u>EVPP 427</u>	Conservation Medicine	3
<u>EVPP 445</u>	Principles of Environmental Toxicology	3
Course Options		
Select at least 15 cred	lits from the following ¹	15
<u>EVPP 395</u>	Undergraduate Research in Environmental Science and Policy	
<u>EVPP 396</u>	Directed Topic in Environmental Science and Policy ²	
<u>EVPP 428</u>	Planetary Health	
<u>EVPP 440</u>	Field Environmental Science ²	
<u>EVPP 490</u>	Special Topics in Environmental Science and Policy	
<u>EVPP 494</u>	Internship	

<u>BIOL 305</u> & <u>BIOL 306</u>	Biology of Microorganisms and Biology of Microorganisms Laboratory
BIOL 402	Applied and Industrial Microbiology
<u>BIOL 404</u>	Medical Microbiology
BIOL 465	Histology
<u>CLIM 319</u>	Air Pollution
<u>GGS 302</u>	Global Environmental Hazards
<u>GGS 304</u>	Population Geography <u>(Mason Core)</u>
<u>GGS 307</u>	Geographic Approaches for Sustainable Development
<u>GCH 205</u>	Global Health <u>(Mason Core)</u>
<u>GCH 360</u>	Health and Environment

Alternative courses may be taken as approved by the program coordinator.

Total Credits

21

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 <u>EVPP 395</u> and <u>EVPP 494</u>.

2

1

In a relevant topic.

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

Course Options

Select 21 unique credits from the following courses; at least 15 of these credits must be in EVPP-prefixed 21 courses: ¹

<u>EVPP 309</u>	Oceanography
<u>EVPP 336</u>	Tackling Wicked Problems in Society the Environment (Mason Core)
<u>EVPP 338</u>	Economics of Environmental Policy
<u>EVPP 362</u>	Intermediate Environmental Policy
<u>EVPP 378</u>	RS: Ecological Sustainability <u>(Mason Core)</u>
<u>EVPP 381</u>	Nature and Culture in Global Wetlands <u>(Mason Core)</u>

8/20/24, 11:15 AM	SC-BS-EVSC: Environmental Science, BS
<u>EVPP 395</u>	Undergraduate Research in Environmental Science and Policy
<u>EVPP 396</u>	Directed Topic in Environmental Science and Policy
<u>EVPP 427</u>	Conservation Medicine
<u>EVPP 428</u>	Planetary Health
<u>EVPP 429</u>	Environmental Science Communication
<u>EVPP 432</u>	Energy Policy
<u>EVPP 434</u>	Food-Energy-Water-Climate Nexus
<u>EVPP 436</u>	Politics of Climate Change Governance
<u>EVPP 440</u>	Field Environmental Science
<u>EVPP 475</u>	Global Biodiversity Governance
<u>EVPP 445</u>	Principles of Environmental Toxicology
<u>EVPP 465</u>	Coral Reef Ecology, Health, and Conservation
<u>EVPP 466</u>	Coral Reef Ecology, Health, and Conservation Lab/Field Experience
<u>EVPP 490</u>	Special Topics in Environmental Science and Policy
<u>EVPP 494</u>	Internship
<u>CLIM 101</u>	Global Warming: Weather, Climate, and Society (Mason Core)
<u>CLIM 111</u>	Introduction to the Fundamentals of Atmospheric Science (Mason Core)
<u>CLIM 112</u>	Introduction to the Fundamentals of Atmospheric Science Lab (Mason Core)
<u>CLIM 312</u>	Physical Climatology
<u>CLIM 314</u>	Severe and Extreme Weather
<u>CLIM 319</u>	Air Pollution
<u>CLIM 390</u>	Topics in Climate Research
<u>CLIM 412</u>	Physical Oceanography
<u>CLIM 438</u>	Atmospheric Chemistry
<u>CLIM 456</u>	Introduction to Atmospheric Radiation
<u>GEOL 309</u>	Oceanography
<u>GGS 121</u>	Dynamic Atmosphere and Hydrosphere <u>(Mason Core)</u>
<u>GGS 302</u>	Global Environmental Hazards
<u>GGS 304</u>	Population Geography <u>(Mason Core)</u>

<u>GGS 307</u>	Geographic Approaches for Sustainable Development
<u>GGS 309</u>	Introduction to Weather and Climate
<u>GGS 312</u>	Physical Climatology
<u>GGS 314</u>	Severe and Extreme Weather
<u>GGS 321</u>	Biogeography
<u>GGS 354</u>	Data Analysis and Global Change Detection Techniques
<u>PHIL 243</u>	Global Environmental Ethics <u>(Mason Core)</u>
PHIL 343	Topics in Environmental Philosophy <u>(Mason Core)</u>
Alternative cou	irses 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)

Required Courses		
<u>EVPP 309</u>	Oceanography	3
EVPP 350	Freshwater Ecosystems	4
<u>EVPP 421</u>	Marine Conservation	3
<u>EVPP 449</u>	Marine Ecology	3
Course Options		
Select at least 8 credits from the following: ¹		8
<u>EVPP 318</u>	Conservation Biology	
<u>EVPP 363</u>	Coastal Morphology and Processes	
<u>EVPP 395</u>	Undergraduate Research in Environmental Science and Policy	
<u>EVPP 396</u>	Directed Topic in Environmental Science and Policy ²	
<u>EVPP 419</u>	Marine Mammal Biology and Conservation	
<u>EVPP 420</u>	Marine Mammal Biology and Conservation Field Course	
<u>EVPP 427</u>	Conservation Medicine	

<u>EVPP 434</u>	Food-Energy-Water-Climate Nexus
<u>EVPP 440</u>	Field Environmental Science ²
<u>EVPP 445</u>	Principles of Environmental Toxicology
<u>EVPP 490</u>	Special Topics in Environmental Science and Policy
<u>EVPP 494</u>	Internship
<u>EVPP 563</u>	Coastal Morphology and Processes
BIOL 331	Invertebrate Zoology
<u>BIOL 480</u>	The Diversity of Fishes
<u>GEOL 364</u>	Marine Geology
<u>GEOL 458</u>	Chemical Oceanography
<u>GGS 307</u>	Geographic Approaches for Sustainable Development
<u>CLIM 412</u>	Physical Oceanography
Alternative courses may be taken as approved by the program coordinator.	

Total Credits

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)

Wildlife Courses		
Select 6 credits from	the following: ¹	6
<u>EVPP 318</u>	Conservation Biology	
<u>EVPP 445</u>	Principles of Environmental Toxicology	
<u>EVPP 490</u>	Special Topics in Environmental Science and Policy	
Select 15 credits from the following: ¹		15
<u>EVPP 395</u>	Undergraduate Research in Environmental Science and Policy ²	
<u>EVPP 396</u>	Directed Topic in Environmental Science and Policy ²	
<u>EVPP 419</u>	Marine Mammal Biology and Conservation	

<u>EVPP 427</u>	Conservation Medicine
<u>EVPP 428</u>	Planetary Health
<u>EVPP 445</u>	Principles of Environmental Toxicology
<u>EVPP 490</u>	Special Topics in Environmental Science and Policy
<u>EVPP 494</u>	Internship ²
BIOL 304	Plant Biology
BIOL 344	Plant Diversity and Evolution
<u>BIOL 345</u>	Plant Ecology
BIOL 311	General Genetics
BIOL 326	Animal Physiology
BIOL 331	Invertebrate Zoology
BIOL 332	Insect Biology
BIOL 437	Ornithology
BIOL 438	Mammalogy
BIOL 439	Herpetology
<u>BIOL 454</u>	Marine Mammal Biology and Conservation
<u>BIOL 460</u>	Infectious Diseases Wildlife
<u>RMGT 300</u>	People With Nature
<u>RMGT 302</u>	Park Management and Operations
<u>RMGT 402</u>	Human Behavior in Natural Environments

Total Credits

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 <u>EVPP 395</u> and <u>EVPP 494</u>.

2

In a topic relevant to wildlife.

Retroactive Requirements Updates:

Effective Catalog years: 2021-2022, 2022-2023, 2023-2024

Previous requirement as stated in the catalog: Previously, there weren't any guardrails to safeguard against double-

SC-BS-EVSC: Environmental Science, BS

counting courses. The concentration credits should not be allowed to share with the core requirements of the degree.

Plan of Study:

Honors Information:

Program Outcomes

Additional Program Information

This information is required by the Office of Accreditation and Program Integrity.

Courses offered via distance (if applicable):

What is the Face-to-Face Only primary delivery format for the program? Does any portion of this program occur off-campus? Yes **Off-campus details:** If students choose to take courses as a part of the Mason-Smithsonian semester. Are you working with a vendor / other collaborators to offer your program? No Related **Departments** Could this program prepare students for any type of professional licensure, in Virginia or elsewhere? No Are you adding or removing a licensure component? No

Additional SCHEV & SACSCOC Information

Is this change a simple retitling of an existing program, with no other changes, to any existing program content, curriculum requirements, etc?

No

Does this change represent a repackaging of content in an existing approved degree/certificate program at the same instructional level (i.e., baccalaureate, master's, or doctoral)?

No

Percentage of total credits containing new course content. ("New course content" is defined by SACSCOC as content that is not currently included in an existing approved degree/certificate program at the same instructiona level. Do not exclude gen ed credits in calculations for undergraduate programs.)

0%-24%

Does this change include the addition of a distance education or face-to-face method of delivery for this program

No

Does this change include the addition of a course/credit-based competency-based education delivery option?

No

Will any additional equipment/facilities be needed?

No

Will any additional faculty be required?

No

Will any additional financial resources be needed?

No

Additional library/learning resources needed?

No

OAPI Use Only – Determination of SACSCOC Impact

Comments or Notes

Green Leaf Program Designation

Is this a Green Leaf Yes program? Green Leaf Sustainability-focused designation Designation

SC-BS-EVSC: Environmental Science, BS

Sustainability-focused academic programs require at least one green leaf course. Either that course is itself sustainability-focused or else the program requires a set of sustainability-related courses with aggregated substance equivalent to a sustainability-focused course.

Relationship to Existing Courses

Relationship to Existing Programs

List sustainabilityfocused courses currently required in the degree program:

Does this program cover material which crosses into another department? No	
Additional Attachments	<u>BS-Environmental-Science-Wildlife.pdf</u> <u>BS-Environmental Science-Human and Ecosystem Response to Climate</u> <u>Change.pdf</u>
SCHEV Proposal	
Executive Summary	
Reviewer Comments	
Additional Comments	

Is this course required of all students in this degree program?

%wi_required.eschtml%

Key: 151