Program Change Request

Date Submitted: 01/23/24 9:45 am

Viewing: SC-BS-GEOG : Geography, BS

Last approved: 05/16/23 2:08 pm

Last edit: 03/08/24 4:32 pm

Changes proposed by: jbazaz

Catalog Pages Using this Program

Geography, BS

Are you completing this form on someone else's behalf?

Yes

Requestor:

In Workflow

1. **GGS Chair**
2. **SC Curriculum Committee**
3. SC Assistant Dean
4. Assoc Provost-Undergraduate
5. Registrar-Programs

Approval Path

1. 03/15/24 11:33 am Nathan Burtch (nburtch): Approved for GGS Chair

History

1. Nov 1, 2017 by clmig-jwehrheim
2. Jan 11, 2018 by rzachari
3. Feb 26, 2018 by Jennifer Bazaz Gettys (jbazaz)
4. Mar 8, 2018 by rzachari
5. Feb 3, 2019 by Dieter Pfoser (dpfoser)
6. Feb 10, 2020 by Nathan Burtch (nburtch)
7. Feb 9, 2022 by Timothy Leslie (tleslie)
8. May 20, 2022 by Jennifer Bazaz

Gettys (jbazaz)
9. May 16, 2023 by Jennifer Bazaz Gettys (jbazaz)

Name	Extension	Email
Nathan Burtch	1207	nburtch

Effective Catalog: 2024-2025

Program Level: Undergraduate

Program Type: Bachelor's

Degree Type: Bachelor of Science

Title: Geography, BS

Banner Title: Geography, BS

Registrar/OAPI Use Only – SCHEV Status Approved

Registrar's Office Use Only – Program Start Term

Registrar/OAPI Use Only – SCHEV Letter

Registrar/OAPI Use Only – SACSCOC Status

Concentration(s):

	Associated Concentrations	Registrar's Office Use Only: Concentration Code
1	Geoinformatics	GINF
2	Urban Science	URBS
3	Geospatial Intelligence	GI

Registrar/IRR Use Only – Concentration CIP Code

College/School: College of Science

Department / Academic Unit: Geography & Geoinformation Science

Jointly Owned Program? No

Justification

What: Removing SOCI 313 and replacing it with SOCI 213.
Why: SOCI 313 is being replaced by SOCI 213.

What: Updating courses in elective/concentration lists
Why: We have added a couple new classes that need to be integrated into the program. As well, this is an effort to keep the listing of non-GGS courses in concentrations robust.

Total Credits Required: Total credits: minimum 120

Registrar's Office Use Only - Program Code: SC-BS-GEOG

Registrar/IRR Use Only – Program CIP Code

Admission Requirements:

Admissions

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

Program-Specific Policies:

Policies

Students must fulfill all Requirements for Bachelor's Degrees including the Mason Core.
GGS 415 Seminar in Geographic Thought and Methodology (Mason Core) fulfills the writing intensive requirement.
For policies governing all undergraduate programs, see AP.5 Undergraduate Policies.

Degree Requirements:

Students should refer to the Admissions & Policies tab for specific policies related to this program.
Candidates for the Geography, BS degree must complete the Core Courses, Breadth and Experience Courses, Elective Courses, and one concentration, all with a minimum GPA of 2.00:

Geography

Core Courses

GGS 102	Physical Geography (Mason Core)	3-4
or GGS 121	Dynamic Atmosphere and Hydrosphere (Mason Core)	
or GGS 122	Dynamic Geosphere and Ecosphere	
GGS 103	Human Geography (Mason Core)	3
GGS 110	Introduction to Geoinformation Technologies	3
GGS 300	Quantitative Methods for Geographical Analysis	3
GGS 310	Cartographic Design	3
GGS 311	Geographic Information Systems	3
GGS 415	Seminar in Geographic Thought and Methodology (Mason Core)	13
GGS 485	Capstone in Geography and Geoinformation Science	3
Total Credits		24-25

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Fulfills the writing intensive requirement.

Breadth and Experience Courses

Spatial Computing

GGS 366	Spatial Computing	3
GGS 379	Remote Sensing	3
MATH 113	Analytic Geometry and Calculus I (Mason Core)	4

Systematic Courses

Select one from the following courses: 3

- GGS 301 Political Geography (Mason Core)
- GGS 302 Global Environmental Hazards
- GGS 303 Geography of Resource Conservation (Mason Core)
- GGS 304 Population Geography (Mason Core)
- GGS 305 Economic Geography
- GGS 306 Urban Geography
- GGS 307 Geographic Approaches for Sustainable Development
- GGS 309 Introduction to Weather and Climate
- GGS 312 Physical Climatology
- GGS 314 Severe and Extreme Weather
- GGS 321 Biogeography
- GGS 340 Health Geography
- GGS 344 Military Geography
- GGS 346 Geography of Religions and Belief Systems
- GGS 357 Urban Planning
- GGS 399 Select Topics in GGS

Regional Courses

Select one from the following courses: 3

- GGS 315 Geography of the United States
- GGS 316 Geography of Latin America
- GGS 317 Geography of China (Mason Core)

GGS 320	Geography of Europe	
GGS 325	Geography of North Africa and the Middle East	
GGS 326	Geography of Eastern Europe and Russia	
GGS 333	Issues in Regional Geography	
GGS 380	Geography of Virginia	
Total Credits		16

Elective Courses

Select 3 credits of GGS courses	3
Select 6 credits of upper division GGS courses	6
Total Credits	9

Geoinformatics Concentration (GINF)

Geoinformatics is a technical field of study in geography in which digital spatial information is captured, stored, processed, visualized, and analyzed. Geoinformatics encompasses theories and methods of understanding geoinformation, and broadly incorporates geographic information systems (GIS), remote sensing (RS), cartography and geovisualization, and spatial computing. Students that complete the Geoinformatics Concentration develop skills in applying spatial scientific techniques to digital spatial information, in order to address complex challenges in social and environmental systems.

Select 6 courses from the following; no more than two courses outside of the GGS prefix are permitted:18-19

GGS 308	Field Mapping Techniques
or GEOL 303	Field Mapping Techniques
GGS 354	Data Analysis and Global Change Detection Techniques
GGS 411	Geovisualization
GGS 416	Satellite Image Analysis
GGS 422	Drone Remote Sensing
GGS 426	Physical Fundamentals of Remote Sensing
GGS 429	Remote Sensing of the Environment and Earth System
GGS 432	Spatial Modeling for Public Health
GGS 462	Web-based Geographic Information Systems
GGS 463	RS: GIS Analysis and Application
GGS 470	Special Topics in Geographic Techniques
GGS 499	GGS Independent Study (When the topic has been approved by an advisor)
BUS 210	Business Analytics I (Mason Core)
CDS 130	Computing for Scientists (Mason Core)
CDS 205	Introduction to Agent-based Modeling and Simulation
CDS 230	Modeling and Simulation I
CDS 292	Introduction to Social Network Analysis (Mason Core)
CDS 403	Machine Learning Applications in Science
CDS 421	Computational Data Science
CRIM 320	Crime and Place
CS 112	Introduction to Computer Programming (Mason Core)

EVPP 430	Fundamentals of Environmental Geographic Information Systems	
GEOL 340	Modern Methods in Geology	
IT 214	Database Fundamentals	
IT 416	Machine Learning for Information Sciences	
MIS 303	Introduction to Business Information Systems (Mason Core)	
~~SOCI 313~~	~~Statistics for the Behavioral Sciences (Mason Core)~~	
SOCI 213	Statistics for the Behavioral Sciences (Mason Core)	
SOCI 405	Analysis of Social Data	
STAT 250	Introductory Statistics I (Mason Core)	
STAT 260	Introduction to Statistical Practice I	
STAT 334	Introduction to Probability Models and Simulation	
STAT 350	Introductory Statistics II	
SYST 130	Introduction to Computing for Digital Systems Engineering (Mason Core)	
Total Credits		18-19

Geospatial Intelligence Concentration (GI)

The geospatial intelligence (or geointelligence) concentration is designed for students to deepen their knowledge about computational approaches to geoinformation, with particular emphasis in techniques of remote sensing and digital image analysis. While geospatial intelligence has a strong Department of Defense connotation, the techniques developed in this concentration have wide applicability regarding location intelligence over a diverse range of uses and in public, private, and non-profit sectors.

Core Courses

GGS 384	Special Topics in Geospatial Intelligence	3
CRIM 310	Introduction to the Intelligence Community	3

Remote Sensing Electives

Select three courses from the following:		9
GGS 416	Satellite Image Analysis	
GGS 422	Drone Remote Sensing	
GGS 426	Physical Fundamentals of Remote Sensing	
GGS 429	Remote Sensing of the Environment and Earth System	
GGS 470	Special Topics in Geographic Techniques (When the topic has been approved by an advisor)	
GGS 499	GGS Independent Study (When the topic has been approved by an advisor)	

Intelligence Electives

Select one course from the following:		3-4
CDS 468	Image Operators and Processing	
CRIM 312	Intelligence Analysis Techniques	
CRIM 350	Counterintelligence	
CRIM 460	Surveillance and Privacy in Contemporary Society	
or GOVT 460	Surveillance and Privacy in Contemporary Society	
GOVT 346	American Security Policy	
GOVT 347	International Security	

MATH 175	Mathematics of Cryptography: An Introduction	
SOCI 391	Big Data, Technology, and Society	
SOCI 405	Analysis of Social Data	
Total Credits		18-19

Urban Science Concentration (URBS)

We are living in an increasingly urban world. As concentrations of human activity, cities and urban environments are data-rich, requiring geo-computational approaches to understand complex city systems and urban challenges. Through this concentration, students will apply geoinformational techniques to large-scale data to urban phenomenon like transportation, mobility, urban planning, and urban development.

Core Courses		
GGS 306	Urban Geography	3
CDS 303	Scientific Data Mining	3
Urban Electives		
Select two courses from the following: 1		6-7
GGS 357	Urban Planning	
or GOVT 357	Urban Planning	
ANTH 382	Urban Anthropology (Mason Core)	
ARTH 311	Design of Cities (Mason Core)	
CONF 329	Community Engagement and Collaborative Problem Solving	
EVPP 442	Urban Ecosystems and Processes	
EVPP 490	Special Topics in Environmental Science and Policy (When the topic is "Urban Smart Growth Strategies")	
GOVT 464	Issues in Public Policy and Administration (when title is "Urban Economic Development in Smart Growth Era")	
NUTR 435	Urban Agriculture	
SOCI 332	The Urban World (Mason Core)	
USST 390	Special Topics in Urban and Suburban Studies	
Mapping and Spatial Analysis Electives		
Select one course from the following:		3
GGS 308	Field Mapping Techniques	
GGS 411	Geovisualization	
GGS 416	Satellite Image Analysis	
GGS 432	Spatial Modeling for Public Health	
GGS 462	Web-based Geographic Information Systems	
GGS 463	RS: GIS Analysis and Application	
GGS 470	Special Topics in Geographic Techniques (When the topic has been approved by an advisor)	
GGS 499	GGS Independent Study (When the topic has been approved by an advisor)	
Computational Data Science Electives		
Select one course from the following:		3
CDS 201	Introduction to Computational Social Science	

CDS 205	Introduction to Agent-based Modeling and Simulation	
CDS 230	Modeling and Simulation I	
CDS 292	Introduction to Social Network Analysis (Mason Core)	
CDS 301	Scientific Information and Data Visualization	
CDS 302	Scientific Data and Databases (Mason Core)	
CDS 421	Computational Data Science	
Total Credits		18-19

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Other urban topics courses may be taken with advisor approval.

Retroactive Requirements Updates:

Plan of Study:

Honors Information:

Honors in the Major

To graduate with departmental honors in Geography, students must have a minimum GPA of 3.50 in GGS courses, an overall GPA of 3.50, and complete the following courses each with a grade of 'B+' or above:

GGS 463	RS: GIS Analysis and Application	3
GGS 499	GGS Independent Study 1	3
3 credits of 500-699 level GGS courses 2		3

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Before registering for this course, students must have identified a topic under the guidance of a full-time faculty member following departmental guidelines.

2

Eligibility for these courses is restricted to students who obtain permission from the undergraduate coordinator or those in the Accelerated Master's program.

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 primary delivery	Face-to-Face Only

format for the program?

Does any portion of this program occur off-campus?

No

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 program? No

Does this program cover material which crosses into another department?

No

Additional Attachments

SCHEV Proposal

Executive Summary

Reviewer Comments

Additional Comments

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

%wi_required.eschtml%

Key: 149