Program Change Request

Date Submitted: 02/27/23 5:06 pm

Viewing: SC-PHD-ESGS : Earth Systems and Geoinformation Sciences, PhD

Last approved: 05/12/22 8:59 am

Last edit: 03/29/23 4:16 pm

Changes proposed by: nburtch

Catalog Pages Using this Program	Earth Systems and Geoinformation Sciences, PhD

No Longer
Anticipated closure
date (i.e., calendar
Rationale for

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

No

Effective Catalog:	2023-2024
Program Level:	Graduate
Program Type:	Doctoral
Degree Type:	Doctor of Philosophy
Title:	Earth Systems and Geoinformation Sciences, PhD

Approval Criteria
1. What was the process used within your acader
2. Who was involved in approving the badge?
3. What evidence was used to identify need/dema
4. Please attach the following to your request as
a. Have you ensured there are no other existing bade
b. Has CPE confirmed the proposed badge does not
c. Has the instructor(s) for this badge experience been
d. Is there a contact hour minimum?
e. Is an assessment required?
f. Does this badge provide a benefit for current or
5. Is this badge co-sponsored with another
organization, association, or unit? (If you would like an
a. What is the organization, program, or department

Earning Criteria

Course:
Badge:
Participant:
Payment:
Portfolio:

In Workflow

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

Approval Path

1. 03/02/23 12:59 pm Nathan Burtch (nburtch): Approved for GGS Chair

History

1. Nov 9, 2017 by clmig-jwehrheim
2. Feb 15, 2018 by rzachari
3. Mar 7, 2019 by Jennifer Bazaz Gettys (jbazaz)
4. Mar 15, 2019 by Tory Sarro (vsarro)
5. Feb 23, 2021 by jriemen
6. Apr 29, 2022 by Tory Sarro (vsarro)
7. May 12, 2022 by Tory Sarro (vsarro)

Presentation:
Assessment:
Credential:
Education
Other:
Project:
Professional
Schedule/Registration:
Volunteer:

Skills Tag

Skills Tag

Badge Attributes

Please select one from each category:
Achievement Type:
Mastery Level:
Time Commitment:
Cost:
Industry Standards:
Recommendations:

Issuance information and Pricing

Pricing: See https://cpe.gmu.edu/digitalbadgepricing/ for more information

Estimated Number of Badges Expected to be Issued:

Notes:

- All badge requests will be routed to CPE for review and approval. Please allow 7
- A Mason Digital Credentials Advisory Group may be developed to review badge

Banner Title:	Earth Systems & Geoinformation
Is this a retitling of an existing program?	
Existing Program	
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):	
INTO Major(s):	
Registrar/IRR Use Only –	

Concentration CIP Code	
College/School:	College of Science
Department / Academic Unit:	Geography & Geoinformation Science
Jointly Owned Program?	No
Participating	
Participating	
Justification	What: Adding recently created courses to Core topic areas. Why: These changes better reflect the curriculum and will reduce the number of requested substitutions. What: Updating admissions requirements. Why: Removing the GRE requirement and international admissions language to avoid confusion- we follow the university's standard.

Catalog Published Information

Total Credits Required:	Total credits: 72
Registrar's Office Use Only - Program Code:	SC-PHD-ESGS
Registrar/IRR Use Only – Program CIP Code	
Admission Requirements:	

Admissions

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

Eligibility

This program is intended for graduates who hold a MS or MA degree in atmospheric science, climatology, meteorology, Earth science, geology, environmental science, remote sensing, hydrology, oceanography, geography, or a related field. Highly-qualified students with a BS or BA in applicable fields are also encouraged to apply. Knowledge of mathematics through calculus is preferred. Interested applicants should contact the program degree coordinator or the GGS director of academic programs for more specific advice.

Application Requirements

To apply, prospective students should complete the George Mason University Admissions Application. Official transcripts from each college and graduate institution attended, a current résumé, **three letters of recommendation,** and an expanded goals

statement will be required.

GRE scores are not required for admission into this program, but are strongly encouraged if a student is seeking internal funding support.

~~Applicants will also need three letters of recommendation and an official report of scores obtained on theGRE-GEN.The GRE requirement for admission to the doctoral program may be waived if the student holds a master's degree from an institution of higher education accredited by a Mason-recognizedU.S.institutional accrediting agency or internationalequivalent.TOEFL scores are required of all internationalapplicants.GRE-GEN scores are required of students wishing to be considered for the Office of the Provost's PresidentialScholarship.A minimum combined math and verbal GRE score of 270/340 are needed to qualify for the PresidentialScholarship.~~

Program-Specific Policies:

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies.

Reduction of Credits

For students entering the doctoral program with a master's degree in a related field from an institution of higher education accredited by a Mason-recognized U.S. institutional accrediting agency or international equivalent, the number of required credits may be reduced up to 30 credits, subject to approval of the program faculty and the associate dean for student affairs. See AP.6.5.2 Reduction of Credits for more information.

Secondary Program Options

Students enrolled in this doctoral program have the option of adding a secondary graduate certificate or master's program. Depending upon the secondary program chosen, many courses may be applicable to both programs. Before adding a secondary program, students are advised to carefully review AP.6.8 Requirements for Graduate Certificates or AP.6.9 Requirements for Master's Degrees and AP.6.10 Requirements for Doctoral Degrees. Faculty advisors should be contacted for further guidance and for secondary program suggestions.

Degree Requirements:

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

Core Courses

Students are required to choose from the following courses in the core areas below. Of the cores, students must complete at least one course in five of the cores and two courses in at least three of those five cores.

The core areas from which to choose these credits are: 24

Quantitative Core:

GGS 560	Quantitative Methods
GGS 754	Earth Science Data and Advanced Data Analysis
GGS 791	Advanced Spatial Statistics

Geoinformatics Core:

GGS 650	Introduction to GIS Algorithms and Programming
GGS 664	Spatial Data Structures
GGS 675	Location Science
GGS 692	Web-based Geographic Information Systems

GGS 787	Scientific Data Mining for Geoinformatics	
Geosciences and Physical Geography Core:		
GGS 656	The Hydrosphere	
GGS 657	The Lithosphere	
GGS 670	Introduction to Atmosphere and Weather	
PHYS 575	Atmospheric Physics	
Human Geography Core:		
GGS 505	Transportation Geography	
GGS 507	**Geographic Approaches for Sustainable Development**	
GGS 516	**Geography of Latin America**	
GGS 517	**Geography of China**	
GGS 518	**Geography of North Africa and the Middle East**	
GGS 526	**Geography of Eastern Europe and Russia**	
GGS 533	Issues in Regional Geography	
GGS 540	Health Geography	
GGS 704	Spatial Demography	
Geographic Information Science Core:		
GGS 553	Geographic Information Systems	
GGS 563	Advanced Geographic Information Systems	
Remote Sensing Core:		
GGS 579	Remote Sensing	
GGS 622	**Drone Remote Sensing**	
GGS 626	**Physical Fundamentals of Remote Sensing**	
GGS 629	**Remote Sensing of the Environment and Earth System**	
GGS 680	Earth Image Processing	
GGS 760	Advanced Topics in Remote Sensing	
GGS 777	Remote Sensing Natural Hazards	
Total Credits		24

Research Synthesis and Colloquium

Research Synthesis		
Select one from the following:		3
GGS 684	Selected Topics in Geospatial Intelligence	
GGS 689	Seminar in Geographic Thought and Methodology	
Colloquium		2
GGS 900	Geography and Geoinformation Science Colloquium (complete twice)	
Total Credits		5

Electives

In consultation with the advisor, students select credits necessary to reach 72 total credits [1]	19-31

1 At least half of the elective credits taken at Mason must be from GGS courses.

Dissertation Research

Students take 12-24 credits, with at least 6 credits in GGS 999 Dissertation. After reaching candidacy, students must stay continuously enrolled GGS 999 Dissertation until defending their dissertation.

Select 12-24 credits from the following:		12-24
GGS 998	Dissertation Proposal	
GGS 999	Dissertation	
Total Credits		12-24

Dissertation Committee

All students will be assigned a temporary academic advisor when they first enroll in the program. No later than the end of the second year, each student should identify a dissertation advisor and form a doctoral committee. The committee will be chaired by a GGS tenure or tenure-track professor and be composed of at least four members. GGS tenure or tenure-track faculty should be at least 50% and have larger committee membership than any other Mason department/academic unit or external organization. At least one member should be a tenure or tenure-track faculty member from another Mason department or program outside of GGS. All members of the committee must be Mason Graduate Faculty and approved by the department's chair.

Candidacy Examination

After completing all required courses, each student must take a candidacy exam administered by the dissertation committee. The exam will have written and oral components. Its purpose is to determine whether the student has acquired adequate general knowledge in the selected subject area, as well as much more detailed knowledge of the specific research topic planned for the dissertation.

Dissertation Proposal and Advancement to Candidacy

After students have completed all required courses and passed the candidacy exam, they should prepare an acceptable dissertation proposal. After the dissertation proposal is approved and the appropriate paperwork is completed, the student will be advanced to candidacy.

Doctoral Dissertation

The degree will be awarded upon completion of the required coursework and successful defense of a PhD dissertation that makes an original and significant contribution to the field.

Retroactive Requirements Updates:

Plan of Study:

Honors Information:

Accelerated Description/Dual Degree Description:

INTO-Mason Requirements:

College Requirements & Policies:

Department / Academic Unit

Requirements & Policies:

Program Outcomes

Additional Program Information

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

Courses offered via distance (if applicable):

Indicate whether students are able

What is the primary delivery format for the program? Both Face-to-Face and Distance

Does any portion of this program occur off-campus?

No

Off-campus details:

Are you working with a vendor / other collaborators to offer your program?

No

Please explain:

Related Departments

Could this program prepare students for any type of professional licensure, in Virginia or elsewhere?

No

Please explain:

Are you adding or removing a licensure component?

No

Please explain:

Additional SCHEV & SACSCOC Information

Is the content of the new program closely related to that of an existing approved program at the same instructional level (i.e., baccalaureate, master's, doctoral)?

Which existing approved program(s)?

Is this new program considered to be "advancing the degree level of a currently approved program" (i.e. existing content is at lower degree level, new content is at the higher degree level)?

Which existing approved program(s)?

Is this new program considered to be "lowering the degree level of a currently approved program" (i.e. existing content is at higher degree level, new content is at the lower degree level)?

Which existing approved program(s)?

Is this a re-opening of a program that was closed to admission within the last five years?

Date of Program Closure

What are the methods of delivery for the program?

Does this program include a course/credit-based competency-based education delivery option?

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

Which existing approved program(s)?

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 instructional level. Do not exclude ge 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

What is the new method of delivery?

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

Description of institutional impact:

Will any additional faculty be required?

No

Description of institutional impact:

Will any additional financial resources be needed?

No

Description of institutional impact:

Additional library/learning resources needed?

No

Description of institutional impact:

OAPI Use Only – Determination of SACSCOC Impact

Comments or Notes

Green Leaf Program Designation

Is this a Green Leaf program? No

Green Leaf Designation

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 sustainability-focused courses currently required in the degree

Sustainability-related academic programs either require at least one sustainability-related course or else offer any green leaf course as an option or elective.*

List sustainability-related courses currently required in the degree

Does this program cover material which crosses into another department?

No

Impacted Departments

Additional Attachments

SCHEV Proposal

Executive Summary

Reviewer Comments

Additional Comments

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

%wi_required.eschtml%

Attached Document

%attach_document.eschtml%

Key: 214