



Program Approval Form

For approval of new programs and deletions or modifications to an existing program.

Action Requested:

Create New (SCHEV approval required except for minors)

Inactivate Existing

Modify Existing (check all that apply)

Title (SCHEV approval required except for minors)

Concentration (Choose one): Add Delete Modify

Degree Requirements

Admission Standards/ Application Requirements

Other Changes: _____

Type (Check one):

B.A. B.S. Minor

M.A. M.S. M.Ed.

Ph.D.

Undergraduate Certificate*

Graduate Certificate*

Other:

College/School: Department:

Submitted by: Ext: Email:

Effective Term: Fall **Please note:** For students to be admitted to a new degree, minor, certificate or concentration, the program must be fully approved, entered into Banner, and published in the University Catalog.

Justification: (attach separate document if necessary)

Program Title: (Required)
Title must identify subject matter. Do not include name of college/school/dept.

Concentration(s):

Admissions Standards / Application Requirements:
(Required only if different from those listed in the University Catalog)

Degree Requirements:
Consult University Catalog for models, attach separate document if necessary using track changes for modifications

Courses offered via distance:
(if applicable)

TOTAL CREDITS REQUIRED:

Existing	New/Modified
Earth Systems Science	N/C
	N/C
	See attached
	GGs 553, GGS 680
30	N/C

*For Certificates Only: Indicate whether students are able to pursue on a Full-time basis Part-time basis

Approval Signatures

Department _____ Date _____ College/School _____ Date _____ Provost's Office _____ Date _____
Required for Minors and Interdisciplinary Programs

If this program may impact another unit or is in collaboration with another unit at Mason, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

For Graduate Programs Only

Graduate Council Member _____ Provost Office _____ Graduate Council Approval Date _____

Program Proposal Submitted to the College of Science Curriculum Committee (COSCC)

The form above is processed by the Office of the University Registrar. This second page is for the COSCC's reference. Please complete the applicable portions of this page to clearly communicate what the form above is requesting.

FOR ALL PROGRAMS

Program Title: Earth Systems Science

Date of Departmental Approval: December 1, 2014

This modification is the result of collaboration between the GGS and AOES faculty.

Proposed Program Modifications for MS in Earth Systems Science Fall 2015

The purpose of this program modification is substantially increase the flexibility and completion rates of students studying Earth Science. The degree's curriculum is dated, having been unchanged since at least the GGS departmental merger in 2008. Through collaboration with colleagues in AOES we hope to make the degree more attractive to prospective students.

- 1) **Modify** Atmosphere requirement to be one of: GGS 670, CLIM 710 (Introduction to Physical Climate System), CLIM 714 (Land-Climate Interactions), PHYS 575, or GEOL 532 (Paleoclimatology)
- 2) **Modify** Hydrosphere requirement to be one of: GGS 656, CLIM 512 (Physical Oceanography), or GEOL 513 (Hydrogeology)

Rationale: We seek to provide flexibility in exactly which courses students take to fulfill their Earth Science core. In the future we plan to add flexibility to the Lithosphere option as well.

- 3) **Modify** Remote Sensing and Quantitative requirement to be 2 of GGS 553, GGS 560, GGS 579, GGS 680, or GGS 754. These methods courses can be substituted with advisor approval.

Rationale: We wish to provide a number of technical courses for Earth Science students, explicitly allowing advisor overrides for other courses.

- 4) **Remove** Human and Biological Perspectives requirement.

Rationale: Only two of these courses were regularly offered. We are deleting a third, and the others are non-departmental. We believe credits expended here are best utilized toward electives.

- 5) **Modify** Colloquium requirement to be GGS 900 and GEOL 536 OR GEOL 792 (Geology Seminar)

Rationale: This cross-departmental requirement will be crucial to insure that students have a broad understanding of up-to-date earth science research.

- 6) **Modify Culminating Experience** to require either 3 credits of GGS/**GEOL** 799, or 1 credit of GGS/**GEOL** 700 and 2 credits of GGS/**GEOL** 798

Rationale: The existing requirement enables a large amount of course time to be spent in thesis or project hours, which tend to be less useful than additional coursework for Master's students.

- 7) **Modify elective requirement**

- a. to be 10 credits
- b. to use 500-900 level courses from CLIM, EVPP, GEOL, or GGS, excluding 700, 798, 799

Rationale: Bookkeeping change to maintain the current total credit requirement, as well as insuring students have a broad range of options for gaining additional depth in the Earth Sciences.

- 8) **Create Total Coursework Requirement** that 10 credits must come from GGS courses, and 10 credits must come from CLIM/GEOL courses

Rationale: In the spirit of the shared degree, we want students to take courses 'across the aisle'. This requirement will insure there is participation in the curricula from both departments. '*Culminating Experience*' credits do not count towards this requirement.

ESS MS Requirements

Current

ES Core: (9 credits)

CSI 655 or PHYS 575 (Atmospheric Physics I)

GGG 656 or EVPP 652 (Hydrosphere)

GGG 657 or GEOL 601 (Lithosphere)

Remote Sensing: (3 credits)

GGG 579 (Remote Sensing)

Quantitative Techniques: (3 credits)

CSI 653 or GGS 754 or GGS 560

Colloquium (3 credits)

GGG 792

GGG 900

3-6 Elective credits to get up to 30 credits

Human and Biological Perspectives (3 credits)

GGG 575 or GGS 704 or GGS 721 or EVPP 577 or EVPP 636

Culminating Experience (3-6 credits)

GGG 798 (3-6 credits) OR

GGG 799 (3-6 credits)

Total: 30 credits

ESS MS Requirements

After Proposed Modifications

ES Core (9 credits): Choose 1 course from each of the following groups

Atmosphere:

GGG 670 (Atmosphere)

CLIM 710 (Physical Climatology)

CLIM 714 (Land-Climate Interactions)

PHYS 575

GEOL 532 (Paleoclimatology)

Hydrosphere

GGG 656

CLIM 512 (Physical Oceanography)

GEOL 513 (Hydrogeology)

Lithosphere

GGG 657 or GEOL 601

Techniques: (6 credits)

2 of **GGG 553 (Geographic Information Systems)**, GGS 560, GGS 579, **GGG 680 (Earth Image Processing)**, or GGS 754. Courses can be substituted with advisor approval.

Colloquium: (2 credits)

GEOL 536 OR GEOL 792 (1 credit)

GGG 900

10 credits of other CLIM, GEOL, GGS, OR EVPP 500-900 level coursework (excludes 700, 798, 799)

At Least 10 credits of coursework must be GGS

At Least 10 credits of coursework must be GEOL/CLIM

Culminating Experience (3 credits)

GGG 799 (Thesis, 3 credits) / GEOL 799 OR

1 hour of GGS/GEOL 700 (Comprehensive Exam) +

GGG/GEOL 798 (Research Project, 2 credits)

Total: 30 credits