



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)

	Existing	New/Modified
Program Title: (Required) Title must identify subject matter. Do not include name of college/school/dept.	Atmospheric Sciences	
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		See attached
Courses offered via distance: (if applicable)		
TOTAL CREDITS REQUIRED:		

*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 _____
Interdisciplinary Council Use Only

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 _____

For Registrar Office's Use Only: Received _____ Banner _____ Catalog _____ revised 6/7/12

Modification of Degree Requirements:

This degree program was submitted to SCHEV in November 2013. After a review by SCHEV staff and a two-hour telecom, it was clear that revisions to the curriculum would be needed, and following their guidance, we have revised the requirements to increase the number of 400-level courses, increase the core courses that all students must complete, reduce the “track” requirements and address an ambiguity surrounding “required” vs. “free” electives. Revised curriculum is shown below, with revisions highlighted yellow and revision explanations highlighted green.

Curriculum Required

The proposed B.S. degree requires 120 credits in total.

The curriculum is divided into 1) general education courses, 2) core courses in the major, 3) additional math and science requirements, 4) required electives and 5) free electives. Some of the general education courses have specific requirements, others may be freely chosen by the student. The core courses in the major have two options: a student must complete one or the other of the 3 courses in the option group.

1) Required University General Education Courses (total = 44 credits):

George Mason University requires 44 credits of general education courses for bachelor’s degrees.

Students may select from any General Education approved courses to meet the following Requirements:

University Orientation (2 credits):

Written Communication (6 credits):

Oral Communication (3 credits):

Literature (3 credits):

Art (3 credits):

Western Civilizations (3 credits):

Social and Behavioral Science (3 credits):

Global Understanding (3 credits):

Students in the Atmospheric Sciences bachelor’s degree program must take the following courses to satisfy particular general education requirements:

Information Technology (3 credits):

CS 112 (3): Computer Science

Quantitative Reasoning (4 credits):

MATH 113 (4): Analytic Geometry and Calculus I

Natural Science (8 credits):

PHYS 160 (3): University Physics I

PHYS 161 (1): University Physics I (Lab)

PHYS 260 (3): University Physics II

PHYS 261 (1): University Physics II (Lab)

Capstone Experience (3 credits):

CLIM 408 (3): Senior Research Project <<< Replaces GEOL 420

Required Major Courses:

The following courses are required.

A grade of at least 2.0 is required in all core courses, with an overall GPA of at least 2.5. The core courses required of all majors are:

CLIM 102 (4): Global Climate Change: Modeling and Predicting an Uncertain Future <<<<
Replaces CLIM 101

CLIM 111 (3): Introduction to the Fundamentals of Atmospheric Science

CLIM 112 (1): Introduction to the Fundamentals of Atmospheric Science Lab

CLIM 301 (4): Weather Analysis & Prediction <<<<< Require of everyone.

CLIM 411 (3): Atmospheric Dynamics* <<<<< Move to 400 level from 311

CLIM 429 (3): Atmospheric Thermodynamics* <<< Move to 400 level from 309

CLIM 475* / PHYS 475 (3): Atmospheric Physics

Options:

The proposed B.S. degree will include 2 options. Students must complete one or the other.

Option 1: (total=9 credits) <<<<< Reduce because 408 is now gen-ed and 301 is required of all

This option is designed to meet the demand for professionals able to digest, interpret, assess and translate weather forecasts, taking on such jobs as broadcast and consulting meteorology, weather analysis, and outreach and extension activities.

In addition to the above core courses, students will take 9 credits from the following meteorology courses:

CLIM 314 / GGS 314 (3): Severe & Extreme Weather

CLIM 319 / GGS 319 (3): Air Pollution

CLIM 312 / GGS 312 (3): Physical Climatology

Option 2: (total=9 credits) <<<<< Reduce because 408 is now gen-ed and 301 required

This option is designed to meet demand for junior level scientists at those institutions that build, maintain, improve and operate the highly complex numerical models of weather, climate and microclimate. These graduates may find employment as entry-level assistants at governmental and private sector forecast shops. The option would also serve those considering an advanced degree in weather and climate modeling, meteorology, climate studies and Earth system science.

In addition to the required core courses, students will take 9 credits of computational atmospheric science courses:

MATH 214 (3): Elementary Differential Equations

CDS 251 (3): Introduction to Scientific Programming

Either CLIM 440 (3): Climate Dynamics* <<<<< New Course

or CLIM 470 (3): Numerical Weather Prediction*

Additional Required Math and Science Courses:

This program is dependent on mastery of classical physics, mathematics including advanced calculus and statistics, and basic chemistry. The following courses are required of all students in the major, beyond those physics and math courses included in the general education requirements:

MATH 114 (4): Analytic Geometry and Calculus II

MATH 213 (3): Analytic Geometry and Calculus III

CHEM 211 (3): General Chemistry I

STAT 250 (3): Introductory Statistics

Required Elective courses (9 credits)

Students will take 9 credits from this list. Courses used to satisfy an option requirement may not be included in the electives. (A student could complete both options with appropriate choice of electives).

MATH 214 (3): Elementary Differential Equations

CDS 251 (3): Introduction to Scientific Programming

CDS 301 (3): Scientific Information and Data Visualization
CLIM 312 / GGS 312 (3): Physical Climatology
CLIM 314 / GGS 314 (3): Severe & Extreme Weather
CLIM 319 / GGS 319 (3): Air Pollution
GGS 353 (3): Observations of the Earth and its Climate
GGS 354 (3): Data Analysis and Global Change Detection Techniques
CLIM 409 (3): Research Internship
CLIM 412 (3): Physical Oceanography
CLIM 429 (3): Atmospheric Thermodynamics
CLIM 438 (3): Atmospheric Chemistry
CLIM 440 (3): Climate Dynamics*
CLIM 470 (3): Numerical Weather Prediction*
CLIM 490 (3): Selected Topics in Atmospheric Research
CLIM 479 (3): Atmospheric Science Internship
GEOL 420 (3): Earth Science and Policy
GGS 455 (3): Environmental Impact Assessment
GGS 456 (3): Introduction to Atmospheric Radiation

Free Elective courses (21 credits) Students will complete 21 credits of free electives to complete the 120 credit hour requirement for the B.S. degree.