

# Program Change Request

Date Submitted: 09/11/19 9:54 pm

Viewing: **SC-BS-AOES : Atmospheric Sciences, BS**

Last approved: 08/21/19 8:33 am

Last edit: 09/11/19 9:54 pm

Changes proposed by: jbazaz

## Catalog Pages

### Using this Program

[Atmospheric Sciences, BS](#)

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

Yes

Requestor:

## In Workflow

1. **AOES Committee**
2. **AOES Chair**
3. **SC Curriculum Committee**
4. SC Associate Dean
5. SC CAT Editor
6. Assoc Provost- Undergraduate
7. Registrar-Programs: Duration
8. Registrar-Programs

## Approval Path

1. 09/12/19 7:07 am  
Barry Klinger (bklinger):  
Approved for AOES Committee
2. 09/12/19 4:36 pm  
Jim Kinter (ikinter):  
Approved for AOES Chair

## History

1. Oct 20, 2017 by  
clmig-jwehrheim
2. Jan 11, 2018 by  
Rebekah Zacharias (rzachari)
3. Jan 29, 2018 by  
Rebekah Zacharias (rzachari)

4. Mar 15, 2018 by  
Rebekah Zacharias  
(rzachari)
5. Aug 21, 2019 by  
Stephanie Oneill  
(soneill)

Name	Extension	Email
Barry Klinger	9227	bklinger

**Effective Catalog:** 2020-2021  
**Program Level:** Undergraduate  
**Program Type:** Bachelor's  
**Degree Type:** Bachelor of Science  
**Title:** Atmospheric Sciences, BS  
**Banner Title:** Atmospheric Sciences, BS  
**Registrar/OAPI Use Only – SCHEV Status**  
**Registrar’s Office Use Only – Program Start Term**  
**Registrar/OAPI Use Only – SCHEV Letter**  
**Concentration(s): Registrar/IRR Use Only – Concentration CIP Code**  
**College/School:** College of Science  
**Department / Academic Unit:** Atmospheric, Oceanic, & Earth Sciences  
**Jointly Owned Program?** No  
**Justification**

CLIM/GGS 312 Physical Climatology and CLIM 440 Climate Dynamics both discuss how the climate system works, giving meteorology students a climate context in which to analyze weather. Therefore CLIM 440 satisfies the needs of the concentration as much as CLIM/GGS 312 does and so we want to allow it to satisfy the requirement. Similarly, CLIM 470 Numerical Weather Prediction is more computational than CLIM 440. The current requirement in the Computational concentration of either CLIM 470 or CLIM 440 let’s a student graduate without as much computational experience if the CLIM 440 option is chosen. Therefore we wish to restrict the requirement to CLIM 470.

**Total Credits**            Total credits: minimum 120  
**Required:**  
**Registrar's Office Use Only - Program Code:**  
                                 SC-BS-AOES

**Registrar/IRR Use  
Only – Program CIP  
Code  
Admission  
Requirements:**

## Admissions

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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

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Students must fulfill all [Requirements for Bachelor's Degrees](#), including the [Mason Core](#).

The university's writing intensive requirement for the major will be met upon successful completion of [CLIM 408](#) Senior Research.

For policies governing all undergraduate degrees, 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.

A GPA of at least 2.00 is required for all core courses, with an overall GPA of at least 2.50.

## Atmospheric Sciences Core

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### Course List

Code	Title	Credits
<a href="#">CLIM 102</a>	Introduction to Global Climate Change Science ( <a href="#">Mason Core</a> )	4
<a href="#">CLIM 111</a>	Introduction to the Fundamentals of Atmospheric Science ( <a href="#">Mason Core</a> )	3
<a href="#">CLIM 112</a>	Introduction to the Fundamentals of Atmospheric Science Lab ( <a href="#">Mason Core</a> )	1
<a href="#">CLIM 301</a>	Weather Analysis and Prediction	4
<a href="#">CLIM 408</a>	Senior Research 1	3
<a href="#">CLIM 411</a>	Atmospheric Dynamics	3

Code	Title	Credits
<a href="#">CLIM 429</a>	Atmospheric Thermodynamics	3
<a href="#">PHYS 475</a>	Atmospheric Physics	3
Total Credits		24

1 Fulfills the writing intensive requirement.

## Chemistry

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### Course List

Code	Title	Credits
<a href="#">CHEM 211</a>	General Chemistry I ( <a href="#">Mason Core</a> )	3
<a href="#">CHEM 213</a>	General Chemistry Laboratory I ( <a href="#">Mason Core</a> )	1
Total Credits		4

## Computer Science

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### Course List

Code	Title	Credits
Select one of the following:		3-4
<a href="#">CDS 130</a>	Computing for Scientists ( <a href="#">Mason Core</a> )	
<a href="#">CS 112</a>	Introduction to Computer Programming ( <a href="#">Mason Core</a> ) 1	
Total Credits		3-4

1Students selecting [CS 112](#) Introduction to Computer Programming ([Mason Core](#)) must take an additional information technology ethics course in order to completely fulfill the [Mason Core Information Technology](#) requirement. Recommended courses include either [CDS 151](#) Data Ethics in an Information Society ([Mason Core](#)) or [CS 105](#) Computer Ethics and Society ([Mason Core](#)).

## Mathematics

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### Course List

Code	Title	Credits
<a href="#">MATH 113</a>	Analytic Geometry and Calculus I ( <a href="#">Mason Core</a> )	4
<a href="#">MATH 114</a>	Analytic Geometry and Calculus II	4
<a href="#">MATH 213</a>	Analytic Geometry and Calculus III	3
Total Credits		11

## Statistics

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### Course List

Code	Title	Credits
<a href="#">STAT 250</a>	Introductory Statistics I ( <a href="#">Mason Core</a> )	3
Total Credits		3

## Physics

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### Course List

Code	Title	Credits
<a href="#">PHYS 160</a>	University Physics I ( <a href="#">Mason Core</a> )	3
<a href="#">PHYS 161</a>	University Physics I Laboratory ( <a href="#">Mason Core</a> )	1
<a href="#">PHYS 260</a>	University Physics II ( <a href="#">Mason Core</a> )	3
<a href="#">PHYS 261</a>	University Physics II Laboratory ( <a href="#">Mason Core</a> )	1
Total Credits		8

## Options

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Students in the atmospheric sciences major will select one of the following options in addition to the required courses above. These options reflect faculty expertise and provide two areas of research emphasis. The options will help in creating educated professionals who have the requisite training to support future weather and climate research, enabling the graduate's potential for providing substantial societal benefits.

### Meteorology Option

This option is designed for students who are primarily interested in weather and weather forecasting. The required classes in this option emphasize atmospheric phenomena, especially those that have the greatest impact on society.

### Course List

Code	Title	Credits
<a href="#">CLIM 312</a>	Physical Climatology	3
or <a href="#">GGS 312</a>	Physical Climatology	
or <a href="#">CLIM 440</a>	Climate Dynamics	
<a href="#">CLIM 314</a>	Severe and Extreme Weather	3
or <a href="#">GGS 314</a>	Severe and Extreme Weather	
<a href="#">CLIM 319</a>	Air Pollution	3
or <a href="#">GGS 319</a>	Air Pollution	
Total Credits		9

### Computational Atmospheric Sciences Option

The computational atmospheric sciences option gives students preparation in computational science, mathematics, and elements of numerical modeling in order to undertake quantitative research or operational work in a professional or graduate setting.

### Course List

Code	Title	Credits
<del><a href="#">CLIM 440</a></del>	<del>Climate Dynamics</del>	<del>3</del>
or <del><a href="#">CLIM 470</a></del>	<del>Numerical Weather Prediction</del>	
<a href="#">CLIM 470</a>	<b>Numerical Weather Prediction</b>	<b>3</b>
<a href="#">MATH 214</a>	Elementary Differential Equations	3

Code	Title	Credits
Select one from the following:		3
<a href="#"><u>CDS 251</u></a>	Introduction to Scientific Programming	
<a href="#"><u>CDS 301</u></a>	Scientific Information and Data Visualization	
<a href="#"><u>CDS 302</u></a>	Scientific Data and Databases	
<a href="#"><u>CDS 303</u></a>	Scientific Data Mining	
Total Credits		9

## Required Electives

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The required electives must be chosen from this list and be independent of courses taken in the selected option (Meteorology or Computational Atmospheric Sciences):

### Course List

Code	Title	Credits
Select 9 credits from the following:		9
<a href="#"><u>CDS 251</u></a>	Introduction to Scientific Programming	
<a href="#"><u>CDS 301</u></a>	Scientific Information and Data Visualization	
<a href="#"><u>CLIM 312</u></a>	Physical Climatology	
or <a href="#"><u>GGG 312</u></a>	Physical Climatology	
<a href="#"><u>CLIM 314</u></a>	Severe and Extreme Weather	
or <a href="#"><u>GGG 314</u></a>	Severe and Extreme Weather	
<a href="#"><u>CLIM 319</u></a>	Air Pollution	
or <a href="#"><u>GGG 319</u></a>	Air Pollution	
<a href="#"><u>CLIM 409</u></a>	Research Internship	
<a href="#"><u>CLIM 412</u></a>	Physical Oceanography	
<a href="#"><u>CLIM 429</u></a>	Atmospheric Thermodynamics	
<a href="#"><u>CLIM 438</u></a>	Atmospheric Chemistry	
<a href="#"><u>CLIM 440</u></a>	Climate Dynamics	
<a href="#"><u>CLIM 456</u></a>	Introduction to Atmospheric Radiation	
or <a href="#"><u>GGG 456</u></a>	Introduction to Atmospheric Radiation	
<a href="#"><u>CLIM 470</u></a>	Numerical Weather Prediction	
<a href="#"><u>GEOL 420</u></a>	Earth Science and Policy ( <a href="#"><u>Mason Core</u></a> )	
<a href="#"><u>GGG 354</u></a>	Data Analysis and Global Change Detection Techniques	
<a href="#"><u>MATH 214</u></a>	Elementary Differential Equations	
Total Credits		9

**Retroactive  
Requirements  
Updates:**

**Plan of Study:**

Honors  
Information:

### **Additional Program Information**

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

**Courses offered via  
distance (if  
applicable):**

**What is the  
primary delivery  
format for the  
program?**  
Face-to-Face Only

**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**

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**Are you changing the total number of credits required for this program?**

**Are you changing the delivery format in any way (e.g adding an online option)?**

**Are you adding/removing a licensure option which was approved by SCHEV?**

Will any portion of this program be offered at an off-campus location?

Are you adding significant new content areas to the program?

Will this program change affect any specialized accreditation?

### Green Leaf Program Designation

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Is this a Green Leaf program? Yes

Green Leaf Designation Sustainability-related designation

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 program: CLIM 102 - Introduction to Global Climate Change Science  
CLIM 111 - Introduction to the Fundamentals of Atmospheric Science  
CLIM 112 - Introduction to the Fundamentals of Atmospheric Science Lab

Does this program cover material which crosses into another department?

No

Additional Attachments [UGC-COS-Program-Mod-Atmospheric-Sciences-BS.pdf](#)

SCHEV Proposal

Executive Summary

Reviewer Comments

Additional Comments



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

%wi\_required.eshtml%