

Program Change Request

Date Submitted: 09/23/25 9:40 am

Viewing: **SC-PHD-CLIM : Climate Dynamics, PhD**

Last approved: 05/26/25 1:47 pm

Last edit: 09/23/25 9:40 am

Changes proposed by: jbazaz

Catalog Pages [Climate Dynamics, PhD](#)
Using this Program

In Workflow

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

Approval Path

- 1. 09/26/25 2:04 pm
Mark Uhen
(muhen): Approved for AOES Chair

History

- 1. Oct 22, 2017 by clmig-jwehrheim
- 2. Jan 29, 2018 by rzachari
- 3. Dec 9, 2018 by Barry Klinger (bklinger)
- 4. Jan 15, 2019 by Tory Sarro (vsarro)

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

Yes

Requestor:

Name	Extension	Email
Barry Klinger	5302	bklinger

Effective Catalog: 2026-2027
Program Level: Graduate
Program Type: Doctoral
Degree Type: Doctor of Philosophy
Title: Climate Dynamics, PhD

Banner Title: Climate Dynamics, PhD

**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):

**Registrar/IRR Use
Only –
Concentration CIP
Code**

College/School: College of Science

**Department /
Academic Unit:** Atmospheric, Oceanic, & Earth Sciences

**Jointly Owned
Program?** No

**Is there an
embedded degree**

5. Nov 30, 2020 by
Jennifer Bazaz
Gettys (jbazaz)
6. Feb 23, 2021 by
jriemen
7. Mar 14, 2022 by
Tory Sarro (vsarro)
8. Jan 25, 2023 by
Jennifer Bazaz
Gettys (jbazaz)
9. Apr 26, 2024 by
Jennifer Bazaz
Gettys (jbazaz)
10. May 26, 2025 by
Deborah Mcgarrah
(dmcgarra)

as part of a
program?

Justification

What: Changing the elective requirement credit total.

Why: In recent years the program has focused more strongly on research for students in first two years, but faculty is concerned that students are not receiving a broad enough introduction to the field. CLIM 796/996 Reading and Research are usually used for topics that are closely related to student's research. If they take 6 credits, they only need to take 5 other elective courses. Decreasing the amount of elective credit that can be taken with these courses will mean that students must take 6 other elective courses.

**Total Credits
Required:**

Total credits: 72

Registrar's Office Use Only - Program Code:

SC-PHD-CLIM

**Registrar/IRR Use
Only – Program CIP
Code**

40.0401 - Atmospheric Sciences and
Meteorology, General.

**Admission
Requirements:**

Admissions

University-wide admissions policies can be found in the [Graduate Admissions Policies](#) section of this catalog. International students and students having earned international degrees should also refer to [Admission of International Students](#) for additional requirements.

Eligibility

Applicants should have demonstrated a high aptitude for quantitative reasoning, applied mathematics, and physical science. Applicants should have an undergraduate degree from an institution of higher education accredited by a Mason-recognized U.S. institutional accrediting agency or international equivalent with a GPA of at least 3.00 in undergraduate work.

Application Requirements

To apply for this program, prospective students should submit the [George Mason University Admissions Application](#) and its required supplemental documentation, three letters of recommendation, and a goals statement.

The GRE is not required for admission into this program.

**Program-Specific
Policies:**

Policies

For policies governing all graduate programs, see [AP.6 Graduate Policies](#).

Transferring Previous Graduate Credit into this Program

Previously earned and relevant graduate credits may be eligible for transfer into this program; details can be found in the [Credit by Exam or Transfer](#) section of this catalog.

**Degree
Requirements:**

This is a Green Leaf program.

Students should refer to the [Admissions & Policies](#) tab for specific policies related to this program.

Fundamental Climate Science Courses

CLIM 610	Introduction to the Physical Climate System	3
CLIM 614	Land-Climate Interactions	3
CLIM 711	Introduction to Atmospheric Dynamics	3
CLIM 712	Physical and Dynamical Oceanography	3
CLIM 751	Predictability and Prediction of Weather and Climate	3
Total Credits		15

Core Computational Courses

CLIM 680	Climate Data	3
or CSI 690	Numerical Methods	
CLIM 715	Numerical Methods for Climate Modeling	3
CLIM 762	Statistical Methods in Climate Research	3
Total Credits		9

Climate Seminar

CLIM 991	Climate Dynamics Seminar (taken three times)	3
Total Credits		3

Electives

Select 21 credits of graduate-level electives, including CLIM courses and other relevant courses as approved by the graduate coordinator¹.

<u>CLIM courses</u>	21
Total Credits	21

¹

Including up to 3 credits of [CLIM 796](#) or [CLIM 996](#).

Eligibility for Qualifying Exams

Satisfactory progress in the program is demonstrated by adequate research progress (as attested by the advisor) and by the student attaining a B- or higher in all CLIM courses and on the final exams of the “Core Climate” courses ([CLIM 610](#) Introduction to the Physical Climate System, [CLIM 614](#) Land-Climate Interactions, [CLIM 711](#) Introduction to Atmospheric Dynamics, [CLIM 712](#) Physical and Dynamical Oceanography). If any of these conditions are not met, the director of the Climate Dynamics program convenes a faculty committee to recommend whether the student should continue in the program. The director makes the final decision based upon input from the committee. A student who is allowed to continue in the program may, in a later semester, retake any Core Climate final exam in which the student’s score was below B-.

To be eligible for [CLIM 997](#) Doctoral Qualification, students must have received a B- or higher on the final exam of each of the four Core Climate courses. Students who have taken the equivalent of any of these courses must take the Core course’s final exam even if they do not take the course.

Qualifying Exams

Students take a qualifying exam by enrolling in [CLIM 997](#) Doctoral Qualification. Students pass the exam by demonstrating an ability to analyze scientific problems, identify an open scientific question in climate dynamics, and outline a methodology to answer the question.

Students take [CLIM 997](#) in their second spring semester in the program. Students who enter in the spring have the option of taking it in their 2nd or 3rd spring semester.

CLIM 997	Doctoral Qualification	3
Total Credits		3

Advancement to Candidacy

After the student has completed all coursework in [CLIM 997](#) Doctoral Qualification, the Climate Dynamics Program Director decides whether the student continues in the doctoral program, based on performance in [CLIM 997](#) and consultation with student's advisor and the instructors of [CLIM 997](#) and Core Climate courses. If the Director decides that the student can continue in the doctoral program, then the student forms a dissertation committee by the end of the following summer and thereafter enrolls in [CLIM 998](#) Doctoral Dissertation Proposal.

Students who continue in the doctoral program are expected to submit a paper to a peer-reviewed journal, and to the dissertation committee, before the start of the Spring semester following the successful completion of [CLIM 997](#) Doctoral Qualification. If this deadline is not met, then the student submits a progress report to the dissertation committee at the end of each semester until the paper is submitted. In all cases, a student must satisfy the submission requirement before submitting and defending a dissertation proposal.

By the end of the student's third year, the student should aim to present a Dissertation Proposal to their dissertation committee. If this deadline is not met, then the student convenes their thesis committee towards the end of their third year and presents a progress report. By the end of the student's fourth year, the student is expected to present a Dissertation Proposal to their thesis committee.

Once a dissertation committee approves the dissertation proposal and the student completes all non-dissertation program requirements, the student is formally advanced to doctoral candidacy and enrolls in [CLIM 999](#) Doctoral Dissertation. Note that Doctoral students are expected to advance to candidacy within no more than six (6) years ([AP.6.10.1 Time Limit](#)).

Dissertation Research and Defense

After advancement to doctoral candidacy, the student works on the dissertation while taking [CLIM 999](#) Doctoral Dissertation. The student is expected to meet and present a progress report with their committee once a year while taking [CLIM 999](#) Doctoral Dissertation. The degree's requirements will be fulfilled upon completion of the required coursework and approval of a dissertation that makes an original and significant contribution to the field. For

both full-time and part-time students enrolled in doctoral programs, whether entry is post-baccalaureate or post-master's, the total time to degree will not exceed nine (9) calendar years from the time of first enrollment in the program as a doctoral student ([AP.6.10.1 Time Limit](#)).

No more than 21 combined credits from [CLIM 998](#) Doctoral Dissertation Proposal and [CLIM 999](#) may be applied toward satisfying doctoral degree requirements, with no more than 18 credits of [CLIM 998](#).

Choose credits for the following courses in consultation with an advisor:		21
CLIM 998	Doctoral Dissertation Proposal	
CLIM 999	Doctoral Dissertation (minimum 3 credits)	
Total Credits		21

**Retroactive
Requirements
Updates:**

Plan of Study:

Honors
Informati
Accelerat
Descripti
INTO-Mas
Requirem
College
Requirem
Departme
Academic

Program Outcomes

Program Outcomes

1. Demonstrate in-depth knowledge.
2. Conduct research.
3. Solve quantitative climate problems.
4. Solve quantitative fluid dynamics problems.
5. Solve quantitative conservation law problems.

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
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

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 instructional 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

Have you reached out to the Libraries to determine whether there are adequate resources to support your program? If not, please email Meg Meiman, Associate University Librarian for Learning, Research, and Engagement at mmeiman2@gmu.edu.

OAPI Use Only – Determination of SACSCOC Impact

Comments or Notes**Green Leaf Program Designation**

Is this a Green Leaf program? Yes

Green Leaf Designation Sustainability-focused 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 program:

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.eshtml%

Key: 6