

# CLIMATE SCIENCE

## Degree Requirements

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-208-dual-titles/>).

To qualify for a dual-title degree, students must satisfy the requirements of the primary graduate program in which they are enrolled. In addition, they must satisfy the degree requirements for the dual-title in Climate Science, listed below.

The minimum course requirements for the dual-title in Climate Science are as follows:

Code	Title	Credits
<b>Required Courses</b>		
At least 3 credits of approved 400-, 500-, or 800-level courses in each of two specific areas:		6
	Climate dynamics seminar	
	Climate dynamics and observations	
3 credits of approved 400-, 500-, or 800-level courses in each of three of the four remaining areas:		9
	Physical climate system	
	Biogeochemistry of the climate system	
	Numerical methods and data analysis	
	Human dimensions of climate change	
<b>Total Credits</b>		<b>15</b>

Students are not eligible to take a 400-level course in any one of the areas if the course is offered by their primary graduate program. All students must take at least one 500-level course, and at least one course must be from outside of their core disciplinary expertise. Finally, all of the courses offered in Climate Dynamics and Observations will include sufficient material in radiative transfer and the greenhouse effect to ensure that the students clearly understand the underlying physics of climate and climate change. A list of the approved courses that will satisfy each of the area requirements is maintained by the graduate program office. Students or faculty may request that the Climate Science Committee consider approval of elective designations for any course, including temporary approvals for experimental or variable-title courses.

The qualifying examination in the primary graduate degree program satisfies the qualifying exam requirement for the dual-title degree program in Climate Science.

In addition to the general Graduate Council requirements for Ph.D. committees (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/phd-dissertation-committee-formation/>), the Ph.D. committee of a Climate Science dual-title doctoral degree student must include at least one member of the Climate Science Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. If the chair of the Ph.D. committee is not also a member of the Graduate Faculty in Climate Science, the member of the committee representing Climate Science must be appointed as co-chair. The Climate Science representative on the student's Ph.D. committee will develop questions for and participate in the evaluation of the comprehensive examination.

Students in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their Ph.D. committee and reflects their original research and education in both their primary graduate program and Climate Science. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The dissertation must be accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.