

CLIMATE SCIENCE

Graduate Program Head	Raymond Najjar
Program Code	CLSCI
Campus(es)	University Park
Degrees Conferred	Dual-Title
The Graduate Faculty	View (https://secure.gradsch.psu.edu/gpms/?searchType=fac&prog=CLSCI)

Students electing this degree program through participating programs earn a degree with a dual title in the Ph.D., i.e., Ph.D. in (graduate program name) and Climate Science.

The following graduate programs offer the dual-title degree in Climate Science: Anthropology, Civil Engineering, Geography, Geosciences, Meteorology and Atmospheric Science, Statistics.

The Climate Science dual-title degree program is administered by the Department of Meteorology and Atmospheric Science for the participating graduate programs. A program committee with representatives from each participating department maintains program definition, identifies courses appropriate to the program, and recommends policy and procedures for the program's operation to the dean of the Graduate School and to the deans of the participating colleges. The dual-title degree program is offered through participating programs in the College of Earth and Mineral Sciences and, where appropriate, other graduate programs in the University. The program enables students from several graduate programs to gain the perspectives, techniques, and methodologies of Climate Science, while maintaining a close association with major program areas of application. Climate Science is a field devoted to the study of Earth's climate in the past, present, and future. A particular focus is understanding the effects of human activities (anthropogenic impacts) and natural forcing on climate.

Admission 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/>).

Students must be admitted to their primary graduate program and The Graduate School before they can apply for admission to the dual-title degree program. Students must be admitted into the dual-title degree program in Climate Science no later than the end of the fourth semester (not counting summer semesters) of entry into the primary Ph.D. program.

Graduate students with research and educational interests in climate science may apply to the Climate Science Dual-Title Degree Program. Students must submit transcripts of their undergraduate and graduate course work, a written personal statement indicating the career goals they hope to serve by attaining a Climate Science dual-title, and a statement of support from their dissertation adviser. A strong preparation in the basic sciences is expected, with evidence of an interest in multiple disciplines.

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
Required Courses		
	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	
Total Credits		15

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.

Minor

A graduate minor is available in any approved graduate major or dual-title program. The default requirements for a graduate minor are stated in Graduate Council policies listed under GCAC-600 Research Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>) and GCAC-700 Professional Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>), depending on the type of degree the student is pursuing:

- GCAC-611 Minor - Research Doctorate (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-611-minor-research-doctorate/>)
- GCAC-641 Minor - Research Master's (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-641-minor-research-masters/>)
- GCAC-709 Minor - Professional Doctorate (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-709-professional-doctoral-minor/>)
- GCAC-741 Minor - Professional Master's (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-741-masters-minor-professional/>)

Graduate assistantships available to students in this program and other forms of student aid are described in the Tuition & Funding (<https://gradschool.psu.edu/graduate-funding/>) section of The Graduate School's website. Students on graduate assistantships must adhere to the course load limits (<https://gradschool.psu.edu/graduate-education-policies/gsad/gsad-900/gsad-901-graduate-assistants/>) set by The Graduate School.

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Contact

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