

WEATHER AND CLIMATE ANALYTICS GRADUATE CREDIT CERTIFICATE PROGRAM

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| Graduate Program Head | David Stensrud |
| Program Code | WCA |
| Campus(es) | World Campus |

This program is designed to address the emerging needs of corporate and government entities looking to integrate information gleaned from weather and climate data streams into their decision-making process. The 13-credit curriculum will prepare individuals to access, analyze, and manipulate atmospheric datasets, generate and test hypotheses, develop predictive analytics systems, and present the results in ways that their respective organizations can use.

Effective Semester: Fall 2018

Expiration Semester: Fall 2023

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>). International applicants may be required to satisfy an English proficiency requirement; see GCAC-305 Admission Requirements for International Students (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-305-admission-requirements-international-students/>) for more information.

Certificate Requirements

Requirements listed here are in addition to requirements listed in Graduate Council policy GCAC-212 Postbaccalaureate Credit Certificate Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-212-postbaccalaureate-credit-certificate-programs/>).

Students are required to complete four 3-credit courses along with a 1-credit capstone experience.

| Code | Title | Credits |
|-------------------------|--|-----------|
| Required Courses | | |
| METEO 810 | Weather and Climate Datasets | 3 |
| METEO 815 | Applied Atmospheric Data Analysis | 3 |
| METEO 820 | Time Series Analytics for Meteorological Data | 3 |
| METEO 825 | Predictive Analytic Techniques for Meteorological Data | 3 |
| METEO 830 | Weather and Climate Analytics Applications (Capstone Experience) | 1 |
| Total Credits | | 13 |

Courses

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.

Learning Outcomes

At the completion of this program, students will be able to:

1. **GATHER:** Identify and collect pertinent sources of global weather and climate data within the context of a specific weather impacted problem;
2. **ANALYZE:** Inspect, clean, transform, and analyze historical weather and climate data in a manner that best defines the characteristics key to understanding a particular weather impact;
3. **PREDICT:** Use predictive analytic techniques on historical observations in order to forecast the future behavior of the atmosphere and exposure of a stakeholder to those events.
4. **COMMUNICATE:** Effectively communicate weather and climate data analyses and the implications of the analysis results to decision-makers.
5. **PERSPECTIVE:** Develop a global perspective on the challenges and opportunities that exist when incorporating weather and climate information into the decision-making process over a wide range of business and governmental sectors.

Contact