

# EARTH DATA ANALYTICS - FOUNDATIONS - GRADUATE CERTIFICATE

The Earth Data Analytics - Foundations ([https://earthlab.colorado.edu/earth-data-analytics-professional-graduate-certificate/?utm\\_source=course-catalog&utm\\_medium=website&utm\\_campaign=certificate-2019](https://earthlab.colorado.edu/earth-data-analytics-professional-graduate-certificate/?utm_source=course-catalog&utm_medium=website&utm_campaign=certificate-2019)) professional certificate provides students with skills to launch or advance their careers in the rapidly expanding world of earth data science. The three-course program can be completed online at a student's own pace or in person in as little as ten months. Students do not need any background in programming or science to enroll.

Data are becoming increasingly available as technology grows and improves. This data can help address some of the world's most pressing environmental problems. As a result of this, earth and environmental scientists with data science expertise (earth data scientists) are now in high demand in the job market. All skills taught in the program are identified through market research on in-demand skills in industry and government.

Through this nine-credit program students will learn:

- Applied data science skills
- Skills needed to work with different types of data
- Interdisciplinary communication & collaboration techniques and approaches
- Skills needed to address scientific challenges using data

Students will emerge from the program with skills in:

- Scientific programming
- GIS and remote sensing
- Using APIs
- Creating automated workflows using data that anyone can use
- Open reproducible science
- And more

Visit the Earth Lab website (<https://www.earthdatascience.org/>) to explore lessons and tutorials related to this program.

## Distance Education Option

Students can take individual courses toward a master's degree or graduate certificate through distance education (online). For more information, connect with the individual graduate program directly.

## Requirements

The professional graduate certificate requires three sequential courses beginning in the fall semester and ending in June, and can be completed entirely online.

### Required Courses and Credits

Code	Title	Credit Hours
GEOG 5463	Earth Analytics Data Science Bootcamp	3
GEOG 5563	Earth Analytics	3

GEOG 5663	Earth Analytics Applications	3
<b>Total Credit Hours</b>		<b>9</b>

## Plan of Study

The three certificate courses must be completed sequentially and can be completed in as little as ten months or up to three years. All certificate courses are offered once annually on the following schedule:

<b>Fall Semester</b>		<b>Credit Hours</b>
GEOG 5463	Earth Analytics Data Science Bootcamp	3
<b>Credit Hours</b>		<b>3</b>
<b>Spring Semester</b>		
GEOG 5563	Earth Analytics	3
<b>Credit Hours</b>		<b>3</b>
<b>Summer</b>		
GEOG 5663	Earth Analytics Applications	3
<b>Credit Hours</b>		<b>3</b>
<b>Total Credit Hours</b>		<b>9</b>

Through completing the certificate, students will learn to:

- Apply data science skills to scientific challenges related to earth systems.
- Code using Python and Jupyter Notebooks.
- Use the command line and other tools to work with environmental and earth systems data.
- Use version control systems like Git and GitHub to work collaboratively as well as back-up and document workflows.
- Use different data types and formats including GIS, remote sensing, social media, text, time series, and more.
- Communicate and collaborate with people across different disciplines using different tools.
- Create fully automated and reproducible data workflows.