

# Climate Science Minor

## Description

The Climate Science Minor introduces students to the domain knowledge and analytical skills necessary for understanding and investigating Earth's climate system. The program serves as an organizing framework for students interested in climate science and will broaden disciplinary expertise for advanced study, graduate programs and/or employment. The minor is structured in three tiers:

- 1) **Introductory lecture and lab courses** serve as an entry point to the program (4 credits total);
- 2) **Content-specific courses** build domain knowledge in climate science (minimum of 3 courses);
- 3) A minimum of one course focused on **mathematical and/or data analytical skills** provides tools necessary for working with scientific data.

Students are encouraged to discuss with their advisers or the program director(s) how climate science may interface with their primary degree program(s). The Climate Science Minor requires a minimum of 18 credit hours, and no more than six credits from the minor may be used to double-count with a major or another minor. A typical student would take 5-6 courses for the minor, and if two 3-credit courses crossover with their major, only an extra 12 credits (4 x 3-credit courses, for example) are needed in addition to the courses in their major.

Students who have previously completed GEOL 110/110L and are interested in the minor should contact Dr. Lukens to discuss options for replacing GEOL 115/115L.

Courses that count toward the Climate Science Minor are listed on the reverse side.

## Program Coordinators

Dr. Bill Lukens, *Geology and Environmental Science*

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## Detailed Curriculum (18 credits total)

### Introductory Lecture and Lab – 4 credits

A total of 4 credit hours of introductory lecture and lab course(s) must be taken:

GEOG 210 Physical Geography (lecture and lab)	4.00	OR
GEOL 115 Earth Systems & Climate Change	3.00	AND
GEOL 115L Earth Systems & Climate Change Lab	1.00	

### Content-Specific Courses – 9-10 credits

Choose a minimum of *three courses* from the following:

GEOG 301 Introduction to Natural Disasters	3.00	
*GEOG 327 Climatology	3.00	
*GEOG 329 Global Climate Change	3.00	
GEOG 330 Weather, Climate and Society	3.00	
+GEOG 430 Dynamics of the Atmosphere	3.00	
GEOL 211 Introduction to Oceanography	3.00	
GEOL 320 Meteorology	3.00	
+GEOL 355 Geochemistry of Natural Waters	3.00	
+GEOL 406 Paleoclimatology/ Paleoceanography	3.00	
+CHEM 353 Environmental Chemistry	3.00	
BIO 354 Global Climate Change and Life: Ecol. and Biol. Impacts of Climate Variability	4.00	

### Analytical Skills – 3-4 credits

At least one course focused on analytical skills must be taken. Choose *at least one course* from the follow lists, and note that only one programming course OR one geospatial course may be counted toward the 18 credit hour total for the minor:

#### *Programming courses*

+CS 149 Introduction to Programming	3.00	OR
+MATH 229 Introduction to Applied Statistics Using R	3.00	

#### *Geospatial courses*

GEOG 215 Introduction to GIS and Cartography	3.00	OR
GEOG 216 Earth Observation and GPS	3.00	OR
GEOL 360 GIS for the Geoscientist	3.00	

#### *Other courses*

+GEOL 440 Geophysics (3, 2)	4.00	
GEOL 489 Quantitative Methods in Geology	3.00	
+MATH 268 Data Analysis and Visualization	3.00	
*GEOG 447 Climates Through Time	3.00	
ISAT 420 Environmental Analysis and Modeling	3.00	

### Other Courses – up to 2 credit hours

The remaining credit hours to fulfill the 18 credit-hour minimum requirement may consist of additional courses approved by the program director(s). Course content must include a focus on Earth's climate system at any scale, and may include intersections with society, individuals, and/or natural systems.

Example courses include: Senior research (e.g., 497, 499A-C), internships (494, 495), or other climate-related courses offered across the university.

\*These courses have pre-requisites of GEOG 230 or GEOL 115

+These courses have pre-requisites that do not include the introductory options within the minor