GEOG107 : Weather, Climate, and Climate Change

General Information

Author:	• Michelle Stonis • Reed, Michael
Course Code (CB01) :	GEOG107
Course Title (CB02) :	Weather, Climate, and Climate Change
Department:	GEOG
Proposal Start:	Fall 2025
TOP Code (CB03) :	(2206.00) Geography
CIP Code:	(45.0701) Geography.
SAM Code (CB09) :	Non-Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	Yes
Course Control Number (CB00) :	CCC000587742
Curriculum Committee Approval Date:	11/27/2024
Board of Trustees Approval Date:	01/21/2025
Last Cyclical Review Date:	11/27/2024
Course Description and Course Note:	GEOG 107 introduces students to the atmosphere, emphasizing its properties and physical processes. The course focuses on the atmosphere's composition and structure, incoming solar radiation and energy balance, temperature, seasonal changes, atmospheric moisture, clouds and fog, precipitation, air pressure, winds, air masses and fronts, tornadoes, hurricanes, weather forecasting, El Nino, climate, and climate change.
Justification:	Mandatory Revision
Academic Career:	• Credit
Mode of Delivery:	• In-Person • Remote • Hybrid • Online
Author:	No value
Course Family:	No value

Academic Senate Discipline

Primary Discipline:	• Geography
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

☐ Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

- Grade with Pass / No-Pass Option

Course Support Course Status (CB26)

Course is not a support course

General Education and C-ID

General Education Status (CB25)

Not Applicable

Transferability

Transferable to both UC and CSU

Transferability Status

Approved

IGETC Area	Area	Status	Approval Date	Comparable Course
5A-Physical Science	Physical Science	Approved	09/02/2008	No Comparable Course defined.

CSU GE-Breadth Area	Area	Status	Approval Date	Comparable Course
B1-Physical Science	Physical Science	Approved	09/02/2008	No Comparable Course defined.

C-ID	Area	Status	Approval Date	Comparable Course
GEOG	Geography	Approved	09/03/2013	GEOG 130 - Introduction to Weather and Climate

Units and Hours

Summary

Minimum Credit Units (CB07)	3
Maximum Credit Units (CB06)	3
Total Course In-Class (Contact) Hours	54
Total Course Out-of-Class Hours	108
Total Student Learning Hours	162

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

☐ Variable Credit Course

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	3	6
Laboratory Hours	0	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	0
Course In-Class (Contact) Hours	
Lecture	54
Laboratory	0
Studio	0
Total	54
Course Out-of-Class Hours	
Lecture	108
Laboratory	0
Studio	0
Total	108

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Prerequisites, Corequisites, Recommended Corequisites, and Recommended Preparation

Advisory

ENGLC1000 - Academic Reading and Writing (in-development)

Objectives

- Analyze stylistic choices in their own writing and the writing of others.
- Write timed, in-class essays exhibiting acceptable college-level control of mechanics, organization, development, and coherence.
- Integrate the ideas of others through paraphrasing, summarizing, and quoting without plagiarism.

- Find, evaluate, analyze, and interpret primary and secondary sources, incorporating them into written essays using appropriate documentation format.
- Proofread and edit essays for presentation so they exhibit no disruptive errors in English grammar, usage, or punctuation.

Entry Standards

Entry Standards	Description
No value	No value

Course Limitations

Cross Listed or Equivalent Course	Description
No value	No value

Specifications

Methods of Instruction

Methods of Instruction	
Methods of Instruction	Lecture
Methods of Instruction	Discussion
Methods of Instruction	Multimedia
Methods of Instruction	Field Activites (Trips)
Methods of Instruction	Presentations

Out of Class Assignments

- Creating content in preparation for in-class group presentations (e.g., PowerPoint presentation on hurricane formation)

- Research and writing assignments addressing a topic relative to the course content (e.g., project about the sequential development of a hurricane)
- Online lessons completed with approved LMS (e.g., Quiz on Canvas about Koppen Climate System)

Methods of Evaluation	Rationale
Exam/Quiz/Test	Unit exam
Exam/Quiz/Test	Midterm exam
Presentation (group or individual)	Student presentations (e.g., explaining recent temperature trends in Los Angeles)
Activity (answering journal prompt, group activity)	Online discussion post (e.g., Canvas-based lesson on the global wind and pressure belts)
Exam/Quiz/Test	Final exam

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
C. Donald Ahrens and Robert Henson	Meteorology Today: An Introduction to Weather, Climate, and the Environment	Cengage Learning	2021	978-0357452073

Other Instructional Materials (i.e. OER, handouts)

No Value

Learning Outcomes

Course Objectives

Describe the energy balance of the Earth-atmosphere system.

Evaluate the forces that cause atmospheric motion and resultant pressure patterns, wind systems and global circulation.

Explain atmospheric moisture, clouds and precipitation processes, and their distributions.

Distinguish the major types of weather systems, their distribution and their formational processes.

Classify and interpret atmospheric data through weather maps, radar imagery and satellite data.

Summarize global climate distributions and compare the causes and implications of global climate change.

SLOs

Apply the key principles and topics in atmospheric science. Expected Outcome Performance: 70.0

ILOs Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
GEOG Geography - AA-T	Analyze, describe, and evaluate the interconnections between our people and place, as well as those between nature and society.
ILOs General Education	apply reasoning to evaluate hypotheses and theories
	examine causality or associations between or among variables of the natural world

Utilize modern methods and tools used in atmospheric inquiry and explain the role of scientific experimentation in the pursuit of atmospheric knowledge. Expected Outcome Performance: 70.0

ILOs Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
	Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.
GEOG Geography - AA-T	Analyze, describe, and evaluate the interconnections between our people and place, as well as those between nature and society.
ILOs General Education	examine causality or associations between or among variables of the natural world

Distinguish the forces that cause atmospheric motion and the resultant pressure patterns, wind systems and global circulation. Expected Outcome Performance: 70.0

ILOs Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
GEOG Geography - AA-T	Analyze, describe, and evaluate the interconnections between our people and place, as well as those between nature and society.
ILOs General Education	apply reasoning to evaluate hypotheses and theories
	examine causality or associations between or among variables of the natural world

Illustrate and describe the development and geographic distribution of storm systems and extreme weather events. Expected Outcome Performance: 70.0

GEOG Geography - AA-T	Analyze, describe, and evaluate the interconnections between our people and place, as well as those between nature and society.
ILOs Core ILOs	Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.

ILOs General Education	apply reasoning to evaluate hypotheses and theories
	examine causality or associations between or among variables of the natural world

Summarize and assess the changing composition of the atmosphere through time, the root causes, and the impact of these changes on everyday life.

Expected Outcome Performance: 70.0

ILOs Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
	Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.
GEOG Geography - AA-T	Analyze, describe, and evaluate the interconnections between our people and place, as well as those between nature and society.
SOC S Social Sciences	Demonstrate critical thinking skills and a basic understanding of the complex interrelationships between human kind and the biophysical environment
	Developed a broad and critical understanding of the complex interconnections between the human and environmental forces in their world
ILOs General Education	apply reasoning to evaluate hypotheses and theories
	examine causality or associations between or among variables of the natural world

Additional SLO Information

Does this proposal include revisions that might improve student attainment of course learning outcomes?

No

Is this proposal submitted in response to learning outcomes assessment data?

No

If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.

No Value

SLO Evidence

No Value

Course Content

Lecture Content

Survey of the Atmosphere (4 hours)

- The thickness of the atmosphere
- Atmospheric composition
- The vertical structure of the atmosphere
- The evolution of the atmosphere

Energy and Mass (8 hours)

- Solar radiation and the seasons

- Energy balance and temperature
- Atmospheric pressure and wind

Water in the Atmosphere (8 hours)
- Atmospheric moisture
- Cloud types
- Atmospheric thermodynamics
- Precipitation processes
- Precipitation forms

Distribution and Movement of Air (6 hours)
- Tropospheric circulation and pressure distribution
- Air-sea interactions
- Air mass formation and source regions
- Types of air masses
- Fronts: cold, warm, stationary and occluded

Atmospheric Disturbances (10 hours)
- Mid-latitude cyclones
- Lightning, thunder and tornadoes
- Tropical storms and hurricanes

Human Activities and Effects (8 hours)
- Weather forecasting and analysis
- Data acquisition and dissemination
- Forecasting methods and types
- Weather maps and images
- Numerical models
- Air pollution and heat islands

Current, Past and Future Climates (10 hours)
- Earth's climate zones
- Climate classification systems
- Climate change
- Paleo-climatological methods and techniques
- Climates of the past
- Factors involved in climate change
- Feedback mechanisms
- General circulation models

Total Hours 54

Additional Information

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Is it possible this course will have a material fee?

No Value

I have contacted my library liaison (https://campusguides.glendale.edu/faculty/liaisons):

No Value

What term(s) will this course be offered?

No Value

Will any additional resources be needed for this course? (Click all that apply)

No Value

If additional resources are needed, add a brief description and cost in the box provided.

No Value

Resources

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liason?

No Value

Did you contact the DEIA liaison?

No

Were there any DEIA changes made to this outline?

No

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value