

GEOG 130: INTRODUCTION TO WEATHER AND CLIMATE

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2021
Credits:	3
Total Contact Hours:	54
Lecture Hours :	54
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	108
Strongly Recommended:	ENGL 101.
District General Education:	C2. Humanities
Transferable to CSU:	Yes
Transferable to UC:	Yes - Approved
Grading Method:	Standard Letter

Catalog Course Description

Students examine oceanic and atmospheric circulation patterns as well as local and global weather patterns and climate trends. Students learn about the earth's atmosphere including energy budgets and astronomical controls on weather processes, the basic atmospheric parameters, and atmospheric hazards such as tornadoes, hurricanes, hail, and lightning and global impact of climate change. 54 lecture hours.

Course Objectives

- Demonstrate understanding of meteorological and climatological processes and methods of data collection.
- Develop skills in applying basic quantitative reasoning to the analysis of weather and climate systems and oceanic and atmospheric circulation patterns.
- Demonstrate proficiency in scientific communication skills as applied to weather and climate data and methods of data collection.
- Evaluate the role of human caused climate change and impact of industrialization of weather and climate patterns.

Major Course Content

1. Energy and Mass
 - a. The layers and properties of the atmosphere
 - b. Solar Radiation
 - c. Energy balance and Temperature
 - d. Atmospheric pressure and Wind
2. Water in the atmosphere
 - a. Precipitation Process
 - b. Cloud formation
 - c. Earth/sun relationship
3. Natural hazards
 - a. Thunderstorms and extreme weather
 - b. Hurricanes
 - c. Mid-latitude cyclones
 - d. Weather forecasting

- e. Modern data collection procedures
 - f. Measurement of weather/climate data
4. Distribution and Movement of Air
 - a. Atmospheric circulation patterns
 - b. Air masses and fronts
 - c. Global climate zones
 - d. Global climatic trends
 5. Climate Change
 - a. Impact of human introduced carbon dioxide on weather and climate patterns
 - b. Coastline changes and impact on economies/societies
 - c. Past climates and projected future changes

Suggested Reading Other Than Required Textbook

Aguado, E. and Burt, J. 2006. Understanding Weather and Climate, 4th ed. Prentice Hall. Ahrens, C. Donald. 2007. Essentials of Meteorology, Intl student ed. Brooks Cole. Ahrens, C. Donald. 2008. Meteorology Today: An Introduction to Weather, Climate, and the Environment, 9th ed. Brooks Cole. Bridgman, H.A. and Oliver, J.E. 2006. The Global Climate System: Patterns, Processes, and Teleconnections. Cambridge University Press. Rohli, R.V. and Vega, A.J. 2007. Climatology. Jones and Barlett.

Examples of Required Writing Assignments

Weather Essay Assignment. Students write an essay answering questions about weather processes and the impact of weather events on population. Students must follow a pre-determined outline and research each question and include 5 minimum sources and include source information in a work cited page. The rubric score will be determined by the completion of each paragraph, the clarity, conciseness and accuracy of each paragraph answer as well as the inclusion of the required sources and the thoroughness of the research and description of the weather/climate terminology. Paragraph 1: Summarize the processes that lead to convection and orographic precipitation Paragraph 2: Compare and contrast cyclones and anticyclones and their associated weather effects Paragraph 3: Describe the effect of El Niño on anchovy harvests for Peruvian fishermen and the ocean conditions that change as a result of an El Niño Paragraph 4: Evaluate the impact of climate change on your own region. Describe the current and future implications of global warming on population, migration, resources and the economy

Examples of Outside Assignments

Reporting the weather Video Assignment. Students will be required to produce a YouTube Video where they demonstrate the work and role of meteorologists in reporting and predicting the weather. Students will perform a series of steps to research, report and produce a video. Step 1: Research the current weather conditions on www.noaa.gov Step 2: Prepare a report of the current conditions and make predictions based on what you think will happen in the next three days weather. Step 3: Make a video describe the Pressure, Wind Speed, Temperature, Relative Humidity, Dew Point, Wind Direction and anticipated events based on the current conditions. Rubric is based on use of appropriate and accurate weather data and presentation must be clear, concise and accurate in presenting the current weather conditions and make a prediction based on the patterns of the atmosphere at the current time.

Instruction Type(s)

Lecture, Online Education Lecture

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

No

IGETC Area 5: Physical and Biological Sciences

5A. Physical Science

IGETC Area 6: Languages other than English

No