



ANTELOPE VALLEY COLLEGE

Academic Affairs  
Course Outline of Record

Academic Affairs Only

<input type="checkbox"/>	New Course
<input type="checkbox"/>	Effective Date (for articulation)
<input checked="" type="checkbox"/>	COR Revision 5/22/2008
<input type="checkbox"/>	Pre Req/Advisories
<input type="checkbox"/>	Other Changes

**COURSE SUBJECT & NUMBER:** GEOG 102

**COURSE NAME:** \*Physical Geography: Earth's Weather and Climate

**COURSE UNITS:** 3 **COURSE HOURS:** 3

**COURSE REQUISITES:** *(Follow format of similar courses found in the college catalog.)*

Advisory: Eligibility for College Level Reading and ENGL 101, and Eligibility for MATH 102.

**COURSE DESCRIPTION:** *(Write a short paragraph providing an overview of topics covered. Be sure to identify target audience--transfer, major, GE, degree/certificate, etc. If repeatable, state the number of times at end of description.)*

This course examines Earth's weather and climate patterns from a geographic perspective. Students explore the basic principles of weather and climate as well as causes and effects. Emphasis is placed on understanding various elements and controls of weather and climate as well as interpreting weather maps and charts. Techniques and principles involved in interpreting weather data, weather charts and maps and weather forecasting will also be introduced. This course fulfills general education requirements for AVC degree or transfer to CSU/UC. (CSU, UC, AVC)

**COURSE OBJECTIVES:** *(Use Bloom's taxonomy to formulate concise, performance-based measurable objectives common to all students. Objectives must be closely aligned with course content, assignments, and methods of evaluation.)*

**Upon completion of course, the successful student will be able to:**

1. Use geographic skills to read weather maps
2. Evaluate methods used to map and diagram weather related geographic data.
3. Apply the scientific method and explain how basic scientific principals are applied in weather.
4. Compose a model of the structure of the atmosphere and diagram Earth/Sun energy relationships.
5. Evaluate how moisture moves through the atmosphere and analyze indicators of atmospheric stability.
6. Describe the factors that contribute to violent weather phenomena.
7. Analyze and predict locations which may experience violent weather.
8. Categorize climates into world climate regions.
9. Compare spatial characteristics of weather data and weather charts for different regions.

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**COURSE CONTENT:** *(Enter course content in terms of specific topics or a specific body of knowledge that each instructor must cover. Put topics in outline form with major and minor headings. Each instructor must cover all material listed below.)*

1. Geographic Fundamentals
  - a. Geographic methods used to identify and describe specific locations, longitude and latitude grid coordinates
  - b. Energy transfer basics
  - c. Symbology used on weather maps and charts
  - d. The scientific method
2. Structure of the Atmosphere
  - a. The vertical structure of atmosphere
  - b. Atmospheric temperature, pressure
  - c. Causes of wind
3. Earth - Sun Relationships
  - a. Relationships between day length, angle of sun and seasons
  - b. Earth's surface energy budget
  - c. Locational differences in distribution of solar energy
4. Atmospheric Moisture
  - a. Methods used to measure atmospheric moisture
  - b. Phase shift in water and the role of energy
  - c. How phase shifts in water and energy transfer moderate Earth's temperatures
5. Atmospheric Stability
  - a. Atmospheric stability and instability
  - b. MAR and DAR
  - c. Cloud classification and information processes
6. Violent Weather
  - a. Causes of violent weather phenomena
  - b. Tornadoes, hurricanes, typhoons, and thunderstorms
  - c. Factors contributing to violent weather
  - d. Predicting locations that could experience these storms.
7. Classification of Climates
  - a. Methods used to classify climate regions
  - b. Climates from around the world
  - c. Climographs
8. Predicting Weather
  - a. Weather forecasting methodology
  - b. Meteorological forecast discussions

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**TYPICAL HOMEWORK ASSIGNMENTS:** (Do not include in-class work, quizzes, or tests)

*This information is necessary for all credit courses. Assignments should be closely related to course objectives, content, and methods of evaluation. (See sample of a "Model Outline" in the AP&P Standards & Practices Handbook.) Include a range of assignments (minimum of three) from which faculty may choose when designing their syllabus.*

**1. Describe nature and frequency of typical reading assignments if applicable; note if any are required:**

Reading the textbook weekly. Reading reference material, journals and web materials may be used to supplement assigned topics.

**2. Describe nature and frequency of typical writing assignments if applicable; note if any are required:**

Written answers to questions from the textbook and lecture material weekly. Written comments from watching videos or analyzing forecasts several times during the semester.

**3. Describe nature and frequency of typical computational assignments if applicable; note if any are required:**

Students will perform mathematical computations associated with weather mapping and analysis. These computations assume an understanding of elementary algebra. Roughly every third week will cover a topic where computations are involved.

**4. Describe other types of homework assignments that students may be asked to complete (oral presentations; special projects; visual/performing arts; etc); note if any are required:**

A poster board project may be assigned to encourage students to explore a topic of interest in more detail.

**5. Describe those critical thinking skills that are derived from assignments listed above; be sure that they reflect course objectives.**

Analyze data for the purpose of making reasonable conclusions about how the atmosphere behaves and how it likely will behave in the future.

**6. For categories 1-4 above, describe the estimated time per week it would take a student to complete homework assignments. Title 5 requires a minimum 2:1 ratio as follows: 1 hr. lecture = 2 hrs. homework; 2 hrs. lecture = 4 hrs. homework; 3 hours lecture = 6 hours homework etc. For example: reading —2 hours; writing —3 hours; etc.**

**Reading Assignments:** 3 hours reading text and supplementary materials

**Writing Assignments:** 1 hour

**Computational Assignments:** .33 hour

**Other Assignments:** 1.67 hour reviewing answered questions in preparation for quizzes and tests.

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**METHODS OF INSTRUCTION:** *(Methods must be consistent with content and appropriate to objectives; state in terms of what instructor will be doing in order to present course content to students: for example, lecture, demonstration, present audio/visual materials; facilitate group work, etc. Do not list specific instructional equipment.)*

Lecture and discussion are the primary methods of instruction. Instructors may also include hands-on activities, everyday examples, maps, slides, videos and other visuals to demonstrate and illustrate geographic concepts.

**METHODS OF EVALUATION:** *(These must be clearly related to course objectives and reflect course content and assignments in order to comply with Title 5 requirements. Describe what instructor will be looking for when evaluating various assignments and tests in order to determine whether students have met course objectives. Grades must be based on demonstrated proficiency in subject matter and determined, where appropriate, by essays, objective and essay tests, research papers or projects, problem solving exercises, or skills' demonstrations.)*

Student assessment will be based on

1. a minimum of three exams consisting of multiple questioning modes, such as multiple choice, fill in blanks, matching, short answer questions or essay questions.
2. weekly quizzes over the text book material

Assessment will be based on :

comprehension of materials presented in class and in the text ,and  
demonstrated ability to apply theories or models to observed phenomenon

If assigned, the following will also be used in assessment of the student's grade:

evaluation of written papers  
summaries of readings in related subjects assigned from outside the textbook,  
summaries of videos and forecasts  
poster board presentation

### **Suggested Texts or Other Instructional Materials**

*(list several when possible; include title, author, publisher, date, and latest edition.)*

Essentials of Meteorology, Donald Aherns. Brooks/Cole Publishing, 2007, Third edition  
or GeoSystems, Robert Christopherson, 2009, 7<sup>th</sup> edition

or The Atmosphere, Fredrick Lutgens and Edward Tarbuck, 2006, 10<sup>th</sup> edition,