



ANTELOPE VALLEY COLLEGE

Academic Affairs
Course Outline of Record

Academic Affairs Only

<input type="checkbox"/>	New Course
<input type="checkbox"/>	Effective Date (for articulation)
X	COR Revision 10/23/2008
<input type="checkbox"/>	Pre Req/Advisories
X	Other Changes 10/23/08
X	SLOs 4/10/2008

COURSE SUBJECT & NUMBER: GEOG 222

COURSE NAME: *Cartography for Geographic Information Systems (GIS)

COURSE UNITS: 3 **COURSE HOURS:** 3 hours weekly

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

Prerequisite: Completion of GEOG 205

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 as (R#).

This course provides a general survey of the methods used for the presentation of GIS data and analysis. We will examine methodology used in the presentation of spatial data. Students will use their cartographic skills to complete their GIS projects.

Before enrolling, students must have the computer skills, knowledge of georeferencing, coordinate systems, processes of data capture, data management and analysis, and the skills necessary to produce a GIS map gained in GEOG 205. This course is intended for Geography/GIS majors and persons using GIS in professional settings. (CSU, AVC)

COURSE OBJECTIVES: (Title 5 requires that courses show evidence of critical thinking skills. 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

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

1. Improve your cartographic skills and knowledge of GIS software
2. Increase your knowledge of the geographic foundations of cartography
3. Discuss various methods available for presentation of geographic data
4. Select appropriate projections for data to be mapped
5. Analyze various methods for presenting the results of spatial analysis
6. Increase your knowledge of how spatial data is presented in decision-making processes
7. Create high quality maps using a variety of quantitative thematic mapping techniques
8. Create presentations of geographic data using a variety of mediums
9. Complete a GIS map portfolio project highlighting the cartographic skills
10. Stimulate interest in further geographic learning

Course Subject & Number: GEOG 222

Course Name: *Cartography for Geographic Information Systems (GIS)

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. Overview of Thematic Mapping and GIS
 - a. How maps present information
 - b. Analyzing maps
2. Geographic Phenomena
 - a. Major themes in geographic research
 - b. Measurement in geography
 - c. Processing geographic data
3. Projections
 - a. Geometric and mathematical relationships of Earth's coordinate grid
 - b. Surface transformation and map distortion
 - c. Patterns of distortion and evaluating projections
4. Designing thematic maps
 - a. The design process and map aesthetics
 - b. Elements of map composition and visual hierarchy
 - c. Typographics on maps
 - d. Color in cartographic design
 - e. Calibrating the computer monitor to the printer
 - f. Grayscale maps
5. Working with ArcGIS
 - a. Legend editor
 - b. Symbology
 - c. Designing custom symbols
 - d. Creating custom color ramps
 - e. Transparency
6. Techniques used in quantitative thematic mapping and GIS
 - a. Choropleth maps
 - b. Dot maps
 - c. Proportional Symbol maps
 - d. Isarithmic maps
 - e. Cartograms
7. Printing Fundamentals
 - a. Printing technologies
 - b. Printing processes
 - c. Exporting to other software

Course Subject & Number: GEOG 222

Course Name: *Cartography for Geographic Information Systems (GIS)

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:

Students will have weekly reading assignments that focus both on the fundamentals of cartography and how to use GIS functionality to perform cartographic processes. Readings may also be assigned from professional journals, white papers, and other industry standard sources.

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

Students will analyze the effectiveness of at least 5 maps from a variety of sources.

Students will design at least 10 map projects focusing on cartographic presentation of geographic data. Part of the design process will include preparing a written plan and project description.

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

Not applicable

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:

Students will also use ArcGIS and PowerPoint software in the cartographic presentation of geographic information.

*For categories 1-4 above, list the estimated hours per week it would take a student to complete assignments. Title 5 (section 55002) requires that each unit must be shown to require three hours of work per week by the student either in or out of class. Homework formula: 3 hours of class work *times* each unit of credit *minus* classroom hours *equals* required homework hours.*

Reading Assignments: 2 hrs

Writing Assignments: 3 hrs

Computational Assignments:

Other Assignments: Students will spend approximately 2 hrs working on GIS skills

Course Subject & Number: GEOG 222

Course Name: *Cartography for Geographic Information Systems (GIS)

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, demonstration, discussion and supervised hands-on use of computers

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.)*

Students will analyze maps evaluating communication effectiveness and appropriateness of cartographic techniques. Students will produce a map portfolio containing at least 10 maps demonstrating mastery of cartographic skills. Evaluation will be based on mastery of cartographic principles and choice of appropriate and effective projections, symbology and map design. Peer comments will be included as a portion of the evaluation process.

Suggested Texts or Other Instructional Materials

(List several when possible; include title, author, publisher, date, and latest edition. If older than five years, provide brief rationale.)

Brewer, Cynthia. Designing Better Maps A Guide for GIS Users, 2005: ESRI Press ISBN 1-58948-089-9

Dent, Borden. Cartography: Thematic Map Design, 1996: Brown Publishers Dubuque IA.

Harvey, Francis. A Primer of GIS Fundamental Geographic and Cartographic Concepts, 2008: The Guilford Press.

Krygier, John & Wood, Denis. Making Maps A Visual Guide to Map Design for GIS, 2005: The Guilford Press.

Other appropriate textbooks or reference books may be substituted at the discretion of the instructor.