

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

 X Transfer Course X A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE:

GEOG 120 Introduction to Geographic Information Systems and GIS Software

UNIT VALUE:

4

MINIMUM NUMBER OF SEMESTER HOURS:

96

BASIC SKILLS REQUIREMENTS:

Appropriate language skills

ENTRANCE REQUIREMENTS

PREREQUISITE: None

COREQUISITE: None

RECOMMENDED PREPARATION: GEOG 100 and CSIS 105

SCOPE OF COURSE:

This course is an introduction to the mapping sciences with a primary focus on Geographic Information Systems (GIS). Course will cover the trends, history, structure, applications, hardware and software, and basic operations of GIS in order to provide a foundation for the use of GIS software. Related geographic technologies to be examined include mapping, aerial and satellite imagery, and Global Positioning Systems (GPS). The lab portion of the course will provide introductory training in the use of ArcGIS software including identifying, evaluating, and inputting spatial data, developing and using raster and vector data sets, converting data from one form to another, and applying programming with GIS software.

SPECIFIC COURSE OBJECTIVES:

Successful students will be able to:

1. Understand and apply basic geographic principles of location, attributes, and spatial relationships.
2. Identify basic types of maps and related spatial data.
3. Demonstrate proficiency in map reading, interpretation, and design.
4. Explain the general applications of GIS in society.
5. Compare and contrast methods of data input including uploading software with numerical and attribute data, scanning maps and images, and digitizing from existing maps.
6. Input, organize, and manipulate raster and vector data sets and be able to deduce the most appropriate uses of each.
7. Compare and contrast various types of data including quantitative data, attribute data, paper maps, aerial and satellite imagery, and GPS.

8. Analyze and construct relational databases.
9. Identify, access, and obtain sources of spatial data for Geographic Information Systems.
10. Apply editing functions to existing GIS data.
11. Effectively convert data from one form to another.
12. Comprehend and apply basic of GIS programming functions.
13. Define key concepts and terminology related to the function of Geographic Information Systems.
14. Identify basic components required for GIS use in the workplace.
15. Identify and analyze GIS data, support, and career resources.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

1. Basic geographic principles: location, attributes, and relationships
2. Use of spatial data in society
3. Map products: function and purpose
4. Map projections, coordinate systems, and scale
5. Basic map interpretation and analysis
6. Introduction to GIS: definition, history, and links to related technologies
7. Sources of spatial data: paper maps, satellite and aerial imagery, and GPS
8. Downloading GPS data into a GIS
9. Spatial data capture: photogrammetry, digitizing, vectorizing, and georeferencing
10. Managing and querying GIS databases
11. Basic spatial analysis with GIS
12. Principles of map production utilizing GIS
13. Basic applications in research and the workplace
14. Current trends in GIS
15. Organizing and displaying data in a GIS
16. Data input using GIS software
17. Creating and using data
18. Working with distance, area, and scale relationships
19. Querying functions including the use of Boolean operators
20. Managing tabular data
21. Creating and editing maps and charts
22. Geocoding and georeferencing
23. Using GIS on the Internet

REQUIRED READING:

One of the following books:

Longley, Paul A., et al. Geographic Information Systems and Science. New York: John Wiley & Sons, 2001.

Clark, Keith C. Getting Started with Geographic Information Systems. 4th ed. Upper Saddle River, NJ: Prentice Hall, 2003.

DeMers, Michael N. Fundamentals of Geographic Information Systems. 2nd ed. New York: John Wiley & Sons, 2003.

Also, one of the following books:

Ormsby, Tim, et al. Getting to Know ArcGIS. Redlands, CA: ESRI Press, 2001.

Hutchinson, Scott. Inside ArcView 8.3. Clifton Park, NY: OnWord Press, 2004.

SUGGESTED READING:

None

REQUIRED WRITING:

One or more assignments chosen from the following options:

- Article Review (2 – 3 page essay)
- Case Study Analysis (2 – 3 page essay)
- Semester Project (5 – 6 page term paper)

OUTSIDE ASSIGNMENTS:

Outside assignments will include reading texts, review of lecture notes, writing assignments, GIS computer lab assignments, and exam preparation. 8 hours per week.

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
- laboratory
- lecture-laboratory combination
- directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply:

- Television Course (Video one-way, e.g. ITV, video cassette, etc.)
- Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
- Two-Way Video Conferencing (Two-way interactive video and audio)
- One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
- Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

Four exams including the final exam = 80% - 90% course grade

Written assignment = 10% - 20% course grade

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes No Number of times course may be taken for credit: 1

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable:

CONTACT PERSON:
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SIGNATURES ON FILE: