

COCONINO COMMUNITY COLLEGE
COURSE OUTLINE

Prepared by: Stephen Franklin, M.A.G.
Revised by: Ingrid Lee
Revised by: Stephen Franklin, M.A.G.
Status: Permanent
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April 26, 2001
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A. Identification:

1. Subject Area: Geography (GEO)
2. Course Number: 135 (previously GIS 101)
3. Course Title: Geodesign
4. Credit Hours: 3
5. Course Description: This course will provide an overview of geodesign processes, an understanding of the concepts, principles, and applications of spatial analysis to design problem-solving projects, and provide student preparation for integrating geodesign techniques across disciplines of study and/or applications in the workplace, and/or to issues relating to optimizing the nature and course of human interactions in an environmental, social, or political context. Three lecture. Fall, Spring.

B. Course Goals: Basic concepts of spatial analysis, applications, problem solving, and geodesign modeling. Practical application of techniques utilizing Geographic Information System (GIS) software for problem solving in an integrated process, including project conceptualization, analysis, design specification, design creation, simulation, and evaluation.

C. Course Outcomes

Upon successful completion of this course, student will:

1. identify the concepts and principles of geospatial data analysis;
2. demonstrate how to create, edit, and geocode geospatial data for mapping applications;
3. illustrate basic geospatial applications using GIS software;
4. demonstrate an understanding of problem identification, project design and successful geodesign modeling using geospatial technology.
5. employ the concepts, principles, and applications of geodesign to develop an interdisciplinary approach to other academic coursework, and/or the workplace environment in order to generate solutions to problems of the human condition that result in designs that more closely follow natural systems.

D. Course Outcomes Assessment will include:

1. GIS applications that are currently being used and the benefits derived from the usage in a written report;
2. an GIS mapping project including initial project proposal, design, methodology, and goals;
3. and a presentation of the conclusions and/or solutions resulting from a GIS geodesign project that addressed a problem generated by factors of the human condition.

E. Course Content will include:

1. types of maps, map scale, map projections, and cartographic principles:
 - a. latitude and longitude;
 - b. topographic map interpretation;
 - c. map overlays;
 - d. online base map resources;
2. operational parameters of GIS software including generation of raster and vector databases:
 - a. spatial and non-spatial data;
 - b. methods for displaying and presenting geospatial data;

- c. symbolizing, classifying, and labeling features for map presentations;
3. principles of geodesign modeling:
 - a. problem identification;
 - b. proposal design;
 - c. project description;
 - d. project objectives and goals;
 - e. techniques for communication, visualization, animation, and color;
 - f. ethics and rules of conduct for data usage and sharing;
 - g. geospatial applications and methodology;
 - h. project significance;
 - i. data resources, GIS online;
4. Geodesign and its utility across disciplines, applications to resolution of problems due to interactions of humans in historical, political, social, or environmental contexts;
5. methods for the collection and usage of spatial and tabular data: advantages, limitations, and applicability on a global perspective;
6. and field experience, information gathering, and observation of applications of GIS technology and its significance to individuals and society.