ENGR 1800

Division: Natural Science and Mathematics
Department: Engineering and Computer Science
Course: ENGR 1800
Title: Interdisciplinary Introduction to GIS
Catalog Description:

This course is an interdisciplinary introduction for Geographical Information Systems (GIS). It covers general GIS applications and teaches fundamentals in the use of the current-version of ArcGIS by ESRI which is the widest used software in the field. The class includes hands-on experience with the software that will aid students planning careers in engineering, drafting, geology or geography, natural resources, law enforcement, many business fields, surveying, journalism, and many other areas. GPS will also be taught for producing input for GIS. There will also be a service learning component to the course to give the students actual experience. This course is cross listed as GEOG 1800 and GEOL 1800

General Education Requirements: N/A
Semesters Offered: Fall
Credit/Time Requirement: Credit: 4; Lecture: 3; Lab: 2
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Prerequisites: MATH 1011 or equivalent

Justification:

This course is intended as an elective for students that will give them an advantage in many fields of study, both in their future course work and in their future employment. Many public schools in Utah are starting to introduce students to the uses of GIS as early as elementary school. Most colleges and universities in Utah offer a similar course. Examples of these are:Salt Lake Community College GEOG 1800, University of Utah GEOGR 3140, College of Eastern Utah GEOG 1500, Southern Utah University GEOG 3550 + GEOG 3560, Utah State University AWER 4930

Student Learning Outcomes:

At the conclusion of this course students should be adept at using the fundamental capabilities of the ArcGIS software and also have experience in teaching themselves new components of the software to prepare them for an expanded use of ArcGIS in the future. They will be introduced to and show competency in the GIS skills listed below, as well as become comfortable with and be able to use the vocabulary of GIS.

Content:

Students will learn the basic concepts, vocabulary and skills involved in GIS including: Exploring the ArcGis software including ArcMap and ArcCatalog Displaying and navigating maps Finding map data and adding it to ArcMap Displaying data by symbolizing, classifying and labeling Spatial analysis of data by location or other attributes Formulating queries, etc Creating graphs, buffering features, etc Defining and evaluating map projections Creating and editing data including the creation of personal geodatabases Drawing features using feature construction tools Editing features Using GPS for GIS input Making maps for presentations, with or

without templates

General Education Outcomes:

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.
Students will learn the skills to be able to present a wide variety of data that includes some positional aspect in a GIS format for both electronic and traditional evaluation.

Key Performance Indicators:

Students will be assessed often through in-class quizzes and tests. Projects will be assigned on a weekly basis to allow students to practice the skills and concepts they will learn in the lectures. Also two major projects will be assigned as midterm and final exams. All major and minor projects will be assessed and graded.Minor projects: 30%-40% of the final gradeQuizzes: 15%-20% of the final gradeMajor Projects: 40%-60% of the final grade

Representative Text and/or Supplies:

Ormsby, et.al., Getting to Know ArcGIS Desktop, Current Edition, ESRI Press, Redlands, CA, or equivalent

Optimum Class Size: 12
Maximum Class Size: 12

Signatures:

I hereby submit this course syllabus:

Cless Young, ,

I hereby find this course consistent with the goals and resources of the Engineering and Computer Science Department:

Garth O. Sorenson, MS, Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)