

The Community College of Baltimore County

Common Course Outline

GEOA 101

Introduction to *Geographic Information Systems*

3 Semester Hours (2 lecture, 3 lab)

Description

Introduction to *Geographic Information Systems*

Introduction to Geographic Information Systems (GIS) introduces students to the concepts, science, and theory of Geographic Information Systems (GIS) and geospatial analysis. Students work with the leading software and technology in the field of geospatial analysis and get hands-on experience using the latest version of ArcGIS. Students master sufficient introductory concepts and skills to develop, complete, and present a GIS project.

3 credits: 2 lecture hours (this course is delivered in a combination lecture and lab format) and 3 lab hours

Prerequisite: ACLT 052

Overall Course Objectives

Upon successfully completing the course students will be able to:

1. identify important events and people in the history of GIS and geospatial analysis;
2. explain the impacts that historical developments (and people) have had on the applications of GIS;
3. explain what the terms "GIS" and "geospatial analysis" mean;
4. identify the major technology components behind GIS;
5. utilize GIS to collect spatial and temporal data from a variety of sources and disciplines;
6. determine how GIS can be used to visualize data in other disciplines (e.g., commerce, disaster management and response, politics, homeland security, planning and education, crime, etc);
7. assess the accuracy of presented material given situations in which GIS has been utilized (e.g., commerce, disaster management and response, politics, homeland security, planning and education, crime, etc.);
8. use collected and processed data to prepare written and oral reports;
9. evaluate spatial information gathered for timeliness, authority, accuracy, validity and completeness;
10. select a developing problem (or an existing problem), and develop a solution by implementing GIS as a group effort;
11. prepare maps using GIS software to visually represent data; and
12. use tabular data from a file and incorporate it in a GIS.

Major Topics

- I GIS and the History of GIS
- II Applications of GIS to Other Disciplines
 - a. Applying GIS to Economic Development
 - b. Applying GIS to Social Problems: Health Care and Crime
 - c. Applying GIS to the Sciences: Mapping the Environment
 - d. Applying GIS to Politics: Redistricting, Power and Money
- III Introduction to GIS and ArcView ©
- IV Identifying “good” data
 - a. Creating a Map and Showing Data
 - b. Adding Tabular Data to a Map
 - c. Creating Charts from Data
- V Map Projections: Lying with Data
- VI Applying ArcView © to Problem Solving
 - a. Locating Features with Particular Attributes
 - b. Finding Features Near other Features
 - c. Editing Spatial Data
- VII Working with Images
- VIII Working with CAD Drawings
- IX Writing Evaluations and Reports

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

- I Exams: a minimum of 2 exams (mid-term and final)
- II Quizzes: a minimum of 6 quizzes
- III Map Projects and Presentations: a minimum of four graded map projects and 1 oral presentation

Writing: The individual faculty member will determine specific writing assignments.

Other Course Information

This course is a GEOA core course.

This course is taught in a computerized environment.

This course is the first course in a required five course sequence.