

GEOA 101

Introduction to Geographic Information Systems

3 Credits : 2 lecture hours and 3 lab hours

Community College of Baltimore County

Common Course Outline

Description

GEOA 101 – Introduction to Geographic Information Systems: introduces students to the concepts, science, and theory of Geographic Information Systems (GIS) and geospatial analysis. Students work with leading software and technology in the field of geospatial analysis and get hands-on experience using the latest version of ArcGIS. Students learn introductory concepts and skills to develop, complete, and present a GIS project.

Overall Course Objectives

Upon completion of this course, students will be able to:

1. describe the fundamental concepts of Geographic Information Science and Technology (GIS&T);
2. discuss the geospatial technology industry and its sectors;
3. describe the major technological systems that the geospatial industry relies upon such as GIS, Global Navigation Satellite System (GNSS), and Remote Sensing and their components;
4. demonstrate proficiency in the basic functions of geospatial software and hardware;
5. utilize GIS&T to collect spatial and temporal data from a variety of sources and disciplines;
6. explain how tabular data must be formatted to allow it to be viewed in a GIS;
7. demonstrate how to take tabular data from a file and incorporate it in a GIS;
8. perform basic spatial analysis in a GIS application;
9. evaluate spatial information for its timeliness, authority, accuracy, format, and completeness;
10. demonstrate the process of collecting and preparing data to present in an appropriate format such as paper map, web map, and web application using GIS&T;
11. demonstrate proficiency in map creation and design principles, including thematic map display, employment of map projections, and cartographic design;
12. create cartographic products using prescribed cartographic principles;
13. select the appropriate coordinate system for a given task;
14. use collected and processed data to prepare and present written and oral reports; and
15. develop a solution by applying GIS&T to a developing or existing problem.

Major Topics

- I. The Fundamental Concepts of GIS
- II. Applications of GIS to Other Disciplines
- III. Introduction to GIS Software and Applications
- IV. Working with Data

The Common Course Outline (CCO) determines the essential nature of each course.
For more information, see your professor's syllabus.

- a. Creating a Map and Displaying Data
 - b. Adding Tabular Data to a Map
- V. Map Projections
- VI. Applying GIS to Problem Solve
 - a. Locating Features with Particular Attributes
 - b. Locating Features with Spatial Relationships
- VII. Creating and Editing Spatial Data
- VIII. Working with Images and CADD Drawings
- IX. Creating Map Layouts for Publication
- X. Working with GIS&T Online
- XI. Writing Evaluations and Reports

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- Six quizzes
- Midterm exam
- Four graded map projects
- Final exam

Date Revised: 4/6/2021

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