Lassen Community College Course Outline

GIS 5 – Web/Mobile-based GIS 3.0 Units

I. Catalog Description

This course covers concepts associated with web-based data and mapping applications, as well as mobile data collection methodology, as they relate to Geographic Information Systems (GIS). Latest trends in online GIS technology are examined, including Esri's ArcGIS Online interface and ancillary components. Web Maps, Story Maps, and Web AppBuilder for ArcGIS will be explored. On the mobile side, application technologies such as Collector for ArcGIS and Survey123 will be studied, also. Students will be exposed to a basic understanding of Global Positioning Systems (GPS), too. This course has been approved for online and hybrid delivery.

Prerequisites: Grade of "C" or higher in both GIS 1 and GIS 2.

Recommended Preparation: Students will need basic computer skills, and a strong and reliable Internet connection, to successfully attend this course. In addition, students will need an applicable smart device (i.e., smartphone or tablet PC) with the latest version of iOS or Android operating system installed.

Transfer Status: CSU
34 hours lecture, 51 hours laboratory, 68 out of class hours, 153 total student learning hours
Scheduled: Fall and Spring semesters

II. Coding Information

Repeatability: Not Repeatable, Take 1 Time
Grading Option: Graded or Pass/No Pass
Credit Type: Credit - Degree Applicable
TOP Code: 2206.10

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Build a viable web map for online GIS use and viewing.
2. Explain what a story map is, and successfully build one.

B. Course Objectives

Upon completion of this course the student will be able to:

1. Compare and contrast desktop GIS and web/mobile-based GIS.
2. Successfully navigate and use Esri's ArcGIS Online graphical user interface (GUI).
3. Build a viable web map for online GIS use and viewing.
4. Share an online web map, and associated components, with other end users.
5. Build a viable web app for online/mobile GIS use and viewing.
6. Share a web app with other end users.
7. Explain what a story map is, and successfully build one.
8. Use Collector for ArcGIS and/or Survey123 to capture field-based data and information.
9. Demonstrate a basic understanding of GPS technology.

IV. Course Content

A. Outline of Topics

1. Web-based GIS Introduction
    a. Desktop GIS versus web-based GIS
    b. Create an ArcGIS Online account
    c. Navigate and understand ArcGIS Online
2. ArcGIS Online Use – Web Maps
    a. Create feature layers
    b. Create a web map
    c. Configure a web map
    d. Share web maps
3. ArcGIS Online Use – Web Apps
    a. Create a web app
    b. Configure widgets
    c. Preview and share a web app
4. Story Maps
    a. Types of story maps
    b. Design a story map concept
    c. Identify a chosen layout
    d. Create a story map
5. Mobile GIS Introduction
    a. Desktop and web-based GIS versus mobile GIS
    b. Typical methodologies
    c. Collector for ArcGIS
    d. Survey123
    e. Best practices
    f. Data quality and assurance
6. GPS Introduction
    a. What is GPS
    b. Types of GPS systems
    c. System components and operation
    d. End-user necessities
    e. Configuration and use, in conjunction with mobile GIS

V. Assignments

A. Appropriate Readings

Additional readings may be assigned by the instructor, which will likely include information directly from the GIS software manufacturer of the GIS software that will be used in this course. The software manufacturer's name is Esri (https://www.esri.com/en-us/home).

B. Writing Assignments

Two research-based short papers will be required in this course, with each covering a current topic associated with a GIS theme that is specific to web- and mobile-based GIS applications, which the instructor will choose during the time of instruction.

C. Expected Outside Assignments

It is expected that for a typical week of the course, a student will spend approximately one hour on lecture material, 1 – 2 hours on reading material, 3 – 4 hours on lab

exercise material, and an additional 1 – 2 hours on discussions, engagement with other students or instructor, etc.

D. Specific Assignments that Demonstrate Critical Thinking
Discussions (usually every week), quizzes (approximately every other week), research papers (two throughout the course), exams (mid-term and final exams), and lab exercises (usually every week).

VI. Methods of Evaluation

Traditional Classroom Instruction
Problem solving exercises; oral and written assignments; quizzes and examinations, which may include problem solving, essay and/or analysis interpretation and presentation.

Online Evaluation
Students will be evaluated using online methods. Online students will complete assignments as described in the course outline using a variety of online methods such as online submission of research papers, asynchronous and synchronous discussions (chat/forum), online quizzes and exams, postings to online website, and email communications in lieu of traditional classroom assignments and evaluation methods.

Hybrid Evaluation
A combination of traditional classroom and online evaluations will be used. Traditional Classroom: exercises/assignments, objective examinations and essay examinations. Online delivery: exercises/assignments, online quizzes and exams, essay forum postings, and chat rooms.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

X Traditional Classroom Delivery Correspondence Delivery

X Hybrid Delivery **X** Online Delivery

Traditional Classroom Instruction
Lecture, Discussion

Online Delivery
Online written lectures and/or video lectures will be made available to students online. Students will be expected to participate in forum-based discussions and online exercises/assignments contained on website. Additionally, discussion papers, email communications, postings to forums, and web-links will comprise the method of instruction.

Hybrid Delivery
A combination of traditional classroom and online instruction will be utilized. 51 hours will be taught face-to-face by the instructor and the other 34 hours will be instructed online through the technology platform adopted by the District. Traditional class instruction will consist of exercises/assignments, lectures, visual aids, and practice exercises. Online delivery will consist of exercises/assignments, lecture posts, discussions, adding extra resources and other media sources as appropriate.

VIII. Representative Texts and Supplies

Getting to Know Web GIS, 5th edition, 2022, Pinde Fu, ISBN 9871589487277.

IX. Discipline/s Assignment

Forestry/Natural Resources, Drafting/CADD, Geography, Engineering Support

X. Course Status

Current Status: Active
Original Approval Date: 05/05/2020
Course Originator: Charles Shoemaker
Board Approval Date: 06/09/2020
Chancellor's Office Approval Date: 06/30/2020
Revised By:
Curriculum/Academic Standards Committee Revision Date:
Reviewed for IPR, no changes recommended: 3/7/2023