Course Prefix/Number/Title: ENVT 110 – Introduction to GPS

Number of Credits: 2

Course Description: The Global Positioning System (GPS) is a system of hardware, software, and procedures designed to support the capture, management, manipulation of spatially referenced data for solving complex planning and management problems. GPS applications use data collectors to locate positions and to guide navigation. This course covers GPS applications related to recreation, navigation and engineering.

Pre-/Co-requisites: None

Course Objectives: Successful completion of this course enables students to:

- Demonstrate ability to use handheld GPS units.
- Demonstrate ability to collect data in the field for use in computer applications.
- Be able to understand and describe the range of applications of GPS
- Discuss what GPS is in terms of its components and functionality
- Identify the components of the GPS system and sources of data discrepancies
- Plan, prepare, and carry out a GPS based data collection
- Demonstrate ability to use a standard GPS unit.

Instructor: Michelle Cauley and Cody Clemenson

Office: Molberg 22

Office Hours: MWF 10:00 a.m. - 12:00 p.m.

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Lecture/Lab Schedule: Independent Study to be determined by instructor and student.

Textbook(s): All materials will be supplied to the student throughout the semester.

Course Requirements: Students are required to complete independent learning assignments, answer weekly quizzes and complete an independent lab assignment. Students will be doing weekly check-ins with the instructor to touch base on questions and problem solve any issues. Grading for this course is as follows:

Assessment Tool:	Percentage of your Grade:		Grading Scale
Unit Quizzes	10%		A = 90 – 100%
Weekly Assignments	20%		B = 80 – 89.9%
Midterm / Final Exam	20%		C = 70 – 79.9%
Professionalism	10%		D = 60 – 69.9%
Independent GPS Project	40%		F = 0 – 59.9%

Quizzes: There will be a series of quizzes throughout the semester from various chapters. These will be open book/note quizzes designed to identify gaps in the lectures and learning.

Assignments / Homework: There will be a combination of assigned readings, in-class worksheets, and traditional assignments. Homework must be submitted on time to receive full credit. Late homework will be accepted with a 10% deduction per week late.

Midterm and Final Exam: There will be one mid-term and one final exam throughout the semester. These will be available to be completed online through Blackboard. The Mid-term and your Final Exam will be open for one week (seven days) and you will have unlimited time to take them within the testing window.

Final GPS Project: Students will work with the instructor on a final independent project to showcase understanding of learned concepts in a real-world example.

Professionalism: Your grade will also be determined by your professionalism in this course. Attendance, timeliness in meeting deadlines, participation, engagement in learning, respectful actions, communication – these will all be factored into your final grade in this course. Just like in the real world, professionalism matters.

Tentative Course Topics Outline:

- An overview of Global Positioning Systems (GPS)
- GPS hardware, GPS terminology
- Data collection; sources, accuracy and error propagation
- GPS segments and structure
- Map projections, datums, coordinate systems, structures and scale
- Review of current GPS issues and events
- Integration of Global Positioning Systems field measurements into GIS databases
- Legal issues concerning GPS data collection
- Data transfer/exchange from GPS to the computer
- GPS activities (Geocaching)
- Independent GPS Project Work

General Education Competency/Learning Outcome(s) OR CTE Competency/Department Learning Outcome(s):

1. Demonstrates an understanding of the natural environment.
   a. Chooses best management practices for sustainability of the natural environment.
   b. Explains the impact of human activity on the environment.
2. Applies the Scientific Methods of Inquiry
   a. Utilizes the scientific process to solve problems

Relationship to Campus Focus: A greater understanding of the Earth, its resources, and our connection to the planet's systems. Through this class we will explore how decisions in our lives impact the planet's resources and their viability for the future.

Classroom Policies: Weekly check-ins are expected. Work is to be completed in an independent nature and work on the final independent project is to be worked on an average of 2 hours a week during the project timeline.

Student Email Policy:

Dakota College at Bottineau is increasingly dependent upon email as an official form of communication. A student's campus-assigned email address will be the only one recognized by the Campus for official mailings. The liability for missing or not acting upon important information conveyed via campus email rests with the student.

Academic Integrity:
According to the DCB Student Handbook, students are responsible for submitting their own work. Students who cooperate on oral or written examinations or work without authorization share the responsibility for violation of academic principles, and the students are subject to disciplinary action even when one of the students is not enrolled in the course where the violation occurred. The Code detailed in the Academic Honesty/Dishonesty section of the Student Handbook will serve as the guideline for cases where cheating, plagiarism or other academic improprieties have occurred.

Disabilities or Special Needs:
Students with disabilities or special needs (academic or otherwise) are encouraged to contact the instructor and Disability Support Services.

Title IX:
Dakota College at Bottineau (DCB) faculty are committed to helping create a safe learning environment for all students and for the College as a whole. Please be aware that all DCB employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers) are required to report information about such discrimination and harassment to the College Title IX Coordinator. This means that if a student tells a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the College's Title IX Coordinator. Students wishing to speak to a confidential employee who does not have this reporting responsibility can find a list of resources on the DCB Title IX webpage.

AI Student Policy:
Unless otherwise indicated in the course syllabus, or in individual instructions for course assignments, or in the absence of the express consent of the course instructor, students are not allowed to utilize generative AI to help produce any of their academic work. Any violation of this policy will be considered an act of academic dishonesty as outlined within the Dakota College Code of Student Life.

RESPONSIBILITIES

Students	• Responsible for following the syllabus and assignment instructions regarding use of generative AI for all academic work. • Obtain permission of the instructor prior to the use of generative AI that is outside of the syllabus or assignment instructions. Provide appropriate rationale for how the use of generative AI will enhance the learning experience for the assignment. • In instances where generative AI is permissible, appropriately cite the generative AI program used and indicate where in the assignment it was used, in a brief submission statement.
Faculty	• Determine if the use of generative AI could enhance student learning in any assignment of project. • Clearly indicate in all course syllabi if generative AI is allowable for any academic work. • If allowable, give specific parameters for how and when generative AI may be used.

	• If a violation of generative AI for the individual course/syllabus is suspected, discuss the concern with the student. If violation is still suspected, inform the appropriate semester coordinator/program director.