COURSE OUTLINE: CCM106 - INTRO TO GIS

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Course Code: Title	CCM106: INTRODUCTION TO GIS FOR CLIMATE CHANGE
Program Number: Name	5250: CLIMATE CHANGE MIT.
Department:	NATURAL RESOURCES PRG
Academic Year:	2024-2025
Course Description:	Throughout this course students will utilize ArcGIS Pro software as an analytical mapping tool for climate change data. Students will develop foundational skills in GIS data analysis and mapping while working with various types of real-world, climate-related data. Students will gain experience working with spatial information pertaining to climate change mitigation, impacts, and the potentially resulting consequences at various scales.
Total Credits:	3
Hours/Week:	3
Total Hours:	42
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**5250 - CLIMATE CHANGE MIT.** VLO 3 Analyze environmental data using GIS and remote sensing software to model climate scenarios.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.

Other Course Evaluation & Assessment Requirements:

Academic success is directly linked to attendance. Missing more than 1/3 of the course hours in a semester shall result in an `F` grade for the course.

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Utilize ArcGIS Pro software with an effective and efficient approach.	1.1 Work with ArcGIS project files and perform proper file management. 1.2 Load and visualize climate related spatial and aspatial data. 1.3 Effectively symbolize climate related data for intuitive display.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Demonstrate understanding of how GIS software can be used to analyze and visualize the effects of climate change.	2.1 Identify real-world scenarios in which GIS is used to study climate change and its effects. 2.2 Recognize how impacts of climate change can be effectively communicated through GIS analysis and mapping.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Demonstrate the ability to create digital products including map layouts, tables, and graphs that display the results of climate change analysis using GIS software.	3.1 Develop graphs and summary tables from geospatial climate related data. 3.2 Convert map views to printable layouts which can include spatial data, tables, graphs and climate related information.
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Exhibit how to identify, locate and utilize different types of GIS data that can be used in climate change studies.	4.1 Locate and search various reputable websites containing different types of climate data. 4.2 Download, import and convert various file types into spatial data.
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Demonstrate how remote sensing and satellite imagery play a role in climate change analysis.	5.1 Describe how greenhouse gases can affect the collection of remotely sensed imagery. 5.2 Demonstrate how satellite imagery can be used to quantify landscape changes due to climate change. 5.3 Perform satellite imagery interpretation to identify how landcover can change over time due to rising temperatures.
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Locate and utilize existing web-based apps that depict various climate change-related phenomena.	6.1 Locate climate related apps that are currently available online. 6.2 Demonstrate how these apps work and how they can be used to display various climate change related information.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments	55%
Quizzes	15%

	Tests	30%
Date:	July 2, 2024	
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.	