COURSE OUTLINE: CCM203 - APPLIED GIS

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Course Code: Title	CCM203: APPLIED GIS FOR CLIMATE CHANGE ANALYSIS
Program Number: Name	5250: CLIMATE CHANGE MIT.
Department:	NATURAL RESOURCES PRG
Academic Year:	2024-2025
Course Description:	Building on the skills developed in CCM106 students will work with GIS software and other apps using real-world climate related data. Example exercises include working with CMIP and RCP climate prediction data, mapping temperature-vulnerable population locations using census information, and using various mediums in which to show their results.
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%, A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation &	Academic success is directly linked to attendance. Missing more than 1/3 of the course hours in

Assessment Requirements: 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. Demonstrate the ability to work with climate model data and NetCDF files.	1.1 Create various climate related maps using RCP projections. 1.2 Access and effectively represent CMIP climate models.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Demonstrate an understanding of how to interpolate point weather station data to create temperature raster data.	2.1 Demonstrate how to effectively clean tabular data in excel. 2.2 Distinguish between different interpolation methods in ArcGIS. 2.3 Convert vector data to raster data.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Use GIS to aid in predicting flooding impacts using various climate parameters.	3.1 Access datasets necessary for flood prediction. 3.2 Utilize geoprocessing tools to produce quantifiable predictions related to flooding.
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Use ArcGIS Online and Dashboards to effectively communicate GIS findings.	4.1 Demonstrate the ability to access and effectively use ArcGIS Online. 4.2 Show outcomes using Storymaps and Dashboards.
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Use climate and census data to depict vulnerable population locations.	5.1 Show ability to access and download necessary datasets. 5.2 Utilize joins to combine tabular and spatial data. 5.3 Effectively work with various levels of census boundary files.
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Undertake an independent final project and create a professional looking final product.	6.1 Demonstrate the ability to undertake a climate change-related final project. 6.2 Create a professional-looking final product showing project findings.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments / Labs	90%
Quizzes	10%

Date: July 2, 2024

Addendum: Please refer to the course outline addendum on the Learning Management System for further information.