



## COURSE OUTLINE: NET108 - GIS

Prepared: Gerard Lavoie, Heath Bishop

Approved: Sherri Smith, Chair, Natural Environment, Business, Design and Culinary

<b>Course Code: Title</b>	NET108: GEOGRAPHIC INFORMATION SYSTEMS
<b>Program Number: Name</b>	5212: ADVENTURE RECREATION 5214: FISH/WILD CONSERVATN 5220: NAT ENVIRONMENT TN 5230: FORESTRY TECHNICIAN
<b>Department:</b>	NATURAL RESOURCES PRG
<b>Academic Year:</b>	2023-2024
<b>Course Description:</b>	This course uses ArcGIS Pro software to build introductory GIS skills focusing on natural environment data and scenarios. Topics covered include: mobile data capture, creating & managing geodatabases, performing spatial and tabular analysis, advanced queries, data manipulation, raster processing and vector editing.
<b>Total Credits:</b>	4
<b>Hours/Week:</b>	4
<b>Total Hours:</b>	56
<b>Prerequisites:</b>	There are no pre-requisites for this course.
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>Substitutes:</b>	NRT208, NRT230
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>	<p><b>5212 - ADVENTURE RECREATION</b> VLO 10 Evaluate and apply current technologies and mathematical concepts used to collect, manage and analyze data.</p> <p><b>5214 - FISH/WILD CONSERVATN</b> VLO 10 Evaluate and apply current technologies and mathematical concepts used to collect, manage and analyze data.</p> <p><b>5220 - NAT ENVIRONMENT TN</b> VLO 2 Utilize natural resources equipment and technology to accurately identify ecosystem components for purposes of conserving and managing natural resources. VLO 4 Conduct natural environment assessments according to standard field survey methods, including the use of appropriate equipment and materials. VLO 7 Work safely in adherence to occupational health and safety standards. VLO 9 Contribute to the implementation of natural resource conservation and management. VLO 10 Perform basic project management support techniques. VLO 11 Communicate technical information accurately and effectively in oral, written and visual forms.</p>
<b>Please refer to program web page for a complete listing of program outcomes where applicable.</b>	



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**5230 - FORESTRY TECHNICIAN**

- VLO 4 Collect, analyze, interpret, and display spatial data using mapping technology and Geographical Information Systems (GIS) to contribute to forest resource management.
- VLO 9 Communicate technical information to a variety of stakeholders in oral, written, visual and electronic forms.
- 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 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.
- 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.

**Essential Employability Skills (EES) addressed in this course:**

**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
Demonstrate understanding as to how GIS is used in real-world scenarios to solve complex, spatial problems.	1.1 Identify problems which can be solved using GIS. 1.2 Recognize environmental areas of study that can be aided by the use of GIS and spatial data analysis.
Course Outcome 2	Learning Objectives for Course Outcome 2
Use the ArcGIS Pro software interface effectively.	2.1 Load multiple vector and raster layers. 2.2 Perform geoprocessing operations. 2.3 Use ArcCatalog to interchange and convert file formats. 2.4 Understand procedures for metadata file update and use.
Course Outcome 3	Learning Objectives for Course Outcome 3
Manipulate attribute tables and perform tabular queries and operations.	3.1 Populate attribute tables from excel spreadsheets. 3.2 Add, delete and calculate field records. 3.3 Perform various query types using selections tools.
Course Outcome 4	Learning Objectives for Course Outcome 4
Create and export effective	4.1 Manipulate layout properties and map surrounds.

	map layouts.	4.2 Export layouts to .pdf, or .tif formats for digital storage. 4.3 Cartographic principles exposure.								
	<b>Course Outcome 5</b>	<b>Learning Objectives for Course Outcome 5</b>								
	Use ArcToolbox to perform geoprocessing tasks.	5.1 Analyze spatial data by buffering features, overlaying data and calculating attribute values. 5.2 Use the merge, dissolve, clip, union, erase, intersect and calculate area tools to manipulate layers & evaluate results. 5.3 Reproject data for use with GPS units, and also to view within different UTM zones.								
	<b>Course Outcome 6</b>	<b>Learning Objectives for Course Outcome 6</b>								
	Integrating Elevation and Depth data with GIS analysis.	6.1 Generate contour lines from elevation data. 6.4 Perform various raster operations.								
	<b>Course Outcome 7</b>	<b>Learning Objectives for Course Outcome 7</b>								
	Perform field data preparation, collection and loading into GIS software.	7.1 Gain exposure to field data collection using Avenza and ESRI products. 7.2 Create layout in ArcGIS Pro and load into Avenza. 7.3 Load collected field data into ArcGIS Pro and Google Earth.								
<b>Evaluation Process and Grading System:</b>	<table border="1"> <thead> <tr> <th>Evaluation Type</th> <th>Evaluation Weight</th> </tr> </thead> <tbody> <tr> <td>Assignments</td> <td>60%</td> </tr> <tr> <td>Quizzes</td> <td>10%</td> </tr> <tr> <td>Tests/Exams</td> <td>30%</td> </tr> </tbody> </table>		Evaluation Type	Evaluation Weight	Assignments	60%	Quizzes	10%	Tests/Exams	30%
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<b>Date:</b>	July 13, 2023									
<b>Addendum:</b>	Please refer to the course outline addendum on the Learning Management System for further information.									