COURSE OUTLINE: NET108 - GIS

Prepared: Gerard Lavoie, Danika Montgomery, Miranda Moffatt
Approved: Sherri Smith, Chair, Natural Environment, Business, Design and Culinary

Course Code: Title	NET108: GEOGRAPHIC INFORMATION SYSTEMS
Program Number: Name	5212: ADVENTURE RECREATION 5214: FISH/WILD CONSERVATN 5220: NAT ENVIRONMENT TN 5221: NAT ENVIRONMENT TY 5230: FORESTRY TECHNICIAN
Department:	NATURAL RESOURCES PRG
Semesters/Terms:	18F, 19W
Course Description:	This course builds introductory GIS skills. Focus is on effective data creation, collection & management. Topics covered include: efficient data capture methodology, creating & managing geodatabases, performing spatial analysis, performing 3D analysis, image georeferencing, advanced spatial queries, data manipulation, image processing, metadata & vector editing.
Total Credits:	4
Hours/Week:	4
Total Hours:	60
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Substitutes:	NRT208
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**5212 - ADVENTURE RECREATION** VLO 10 Evaluate and apply current technologies and mathematical concepts used to collect, manage and analyze data. **5214 - FISH/WILD CONSERVATN** VLO 10 Evaluate and apply current technologies and mathematical concepts used to collect, manage and analyze data. **5220 - NAT ENVIRONMENT TN** 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.

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5221 - NAT ENVIRONMENT TY

VLO 1 Collect, analyze, interpret and report on data from representative biological and environmental samples.

VLO 2 Utilize natural resources information technology equipment to assemble, analyze and present identified ecosystem components for purposes of conserving and managing natural resources.

VLO 10 Communicate technical information accurately and effectively in oral, written, visual and electronic forms.

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.

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 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.
Course Evaluation:	Passing Grade: 50%, D

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Apply knowledge of natural environment practices to plan, create & manage GIS data.	1.1 Effective geodatabase planning & creation. 1.2 Gain experience with GIS toolbars used by OMNR. 1.3 Solve natural environment/management problems using GIS. 1.4 Perform GIS tasks following OMNR data specifications.

Course Outcome 2	Learning Objectives for Course Outcome 2
2. Use the ESRI ArcMap and ArcCatalog interface effectively.	2.1 Load multiple vector and raster layers. 2.2 Maintain existing ArcMap projects used for data update. 2.3 Perform geoprocessing operations. 2.4 Use ArcCatalog to interchange and convert file formats. 2.5 Customize toolbars for efficient usage. 2.6 Understand procedures for metadata file update and use.

Course Outcome 3	Learning Objectives for Course Outcome 3
3. Manipulate attribute tables and perform tabular	3.1 Populate attribute tables from existing spreadsheets. 3.2 Add, delete and calculate field records.

operations.	3.3 Perform many query types using the Field Calculator.
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Create and print effective layouts and digital presentations.	4.1 Manipulate layout properties and operations. 4.2 Export layouts to .pdf, or .tif formats for digital storage. 4.3 Cartographic principles exposure.
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Use ArcToolbox to perform geoprocessing tasks.	5.1 Analyze spatial data by buffering features, overlaying data and calculating attribute values. 5.2 Merge, dissolve, clip, union, erase, intersect and calculate areas tools to manipulate layers & evaluate results. 5.3 Reproject data for use with GPS units, and also to view within different UTM zones. 5.4 Interpolate vertices to incorporate elevation values within a 3D shapefile. 5.5 Understand the geometry repairing tools. 5.6 Perform smoothing to reduce the number of redundant vertices within a shape.
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Integrating Elevation and Depth data with GIS Analysis.	6.1 Generate contour lines from elevation data. 6.2 Create a bathymetric map using depth data. 6.3 Examine slope, line of sight, and hill-shading. 6.4 Perform raster clipping and mosaicking operations.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight	Course Outcome Assessed
Assignments	75%	All
Tests	25%	All

Date: June 19, 2018

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