COURSE OUTLINE: NRT256 - ECOSYSTEM CLASSIFIC.

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Course Code: Title	NRT256: ECOSYSTEM CLASSIFICATION
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
Course Description:	This course is a survey of natural wetland and forest ecosystems and associated plant communities found in central Ontario. A range of vascular and non-vascular wetland and terrestrial plants and lichens will be identified with a focus on indicator species. Identification of these organisms combined with hands-on experience in describing soils in the field will be used to classify a range of local ecosystems using current Ontario Ecological Land Classification tools at the Ecosite and Vegetation-Type level.
Total Credits:	3
Hours/Week:	3
Total Hours:	45
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Substitutes:	NRT218
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 2 Identify, discuss, organize and assess common Flora & Fauna species found throughout ON, including biological and physiological characteristics. VLO 8 Demonstrate an understanding of sustainable development and apply the foundations in the natural environment. VLO 10 Evaluate and apply current technologies and mathematical concepts used to collect, manage and analyze data. **5214 - FISH/WILD CONSERVATN** VLO 1 Demonstrate clear, concise and industry appropriate written, spoken and visual communication skills VLO 2 Identify, discuss, organize and assess common flora and fauna species found throughout Ontario, including biological characteristics VLO 3 Demonstrate the ability to follow standardized protocols to collect field data on fish and wildlife populations in a variety of weather and site conditions. VLO 5 Start and manage their careers in the Fish and Wildlife Conservation field. VLO 7 Recognize the contributions and applications of various science disciplines in the understanding of natural environments.

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VLO 11   Analyze, evaluate and apply subjective and objective safety considerations.

5220 - NAT ENVIRONMENT TN

VLO 1   Collect data from representative biological and environmental samples using routine test procedures.

VLO 2   Utilize natural resources equipment and technology to accurately identify ecosystem components for purposes of conserving and managing natural resources.

VLO 3   Apply the basic concepts of science to natural resource conservation and management.

VLO 4   Conduct natural environment assessments according to standard field survey methods, including the use of appropriate equipment and materials.

VLO 5   Recommend eco-site conservation and management strategies through the classification of ecosystem components.

VLO 7   Work safely in adherence to occupational health and safety standards.

VLO 11   Communicate technical information accurately and effectively in oral, written and visual forms.

5221 - NAT ENVIRONMENT TY

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

VLO 3   Apply the basic concepts of science to natural resource conservation and management.

VLO 5   Apply eco-site conservation and management principles

VLO 7   Ensure all work is safely completed in adherence to occupational health and safety standards.

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

5230 - FORESTRY TECHNICIAN

VLO 1   Conduct forest inventory surveys and field measurements to determine forest resources and values in forests and woodlots.

VLO 2   Assess soil characteristics, vegetation and wildlife habitats to identify their interactions within forest ecosystems.

VLO 8   Work independently and in a collaborative environment while applying effective teamwork, leadership and interpersonal skills.

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 4   Apply a systematic approach to solve problems.

EES 5   Use a variety of thinking skills to anticipate and solve problems.

EES 9   Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.

| | EES 10 | Manage the use of time and other resources to complete projects. |
| | EES 11 | Take responsibility for ones own actions, decisions, and consequences. |

General Education Themes:	Science and Technology
Course Evaluation:	Passing Grade: 50%, D

Course Outcomes and Learning Objectives:		
	Course Outcome 1	**Learning Objectives for Course Outcome 1**
	Identify vascular and non-vascular plants and lichens.	1.1 Identify selected flowering, vascular wetland plants (floating-leaved, submergent, emergent and other associated plants). 1.2 Identify selected ferns, horsetails, club-mosses, liverworts, mosses, and lichens and describe morphology and associated terminology specific to each taxonomic group. 1.3 Identify, describe and compare the fruiting structures and vegetative features of selected grasses, sedges and rushes using appropriate terminology and demonstrate effective use of dichotomous keys. 1.4 Identify, describe and compare the reproductive structures and processes characteristic of ferns, club-mosses, mosses, and lichens.
	Course Outcome 2	**Learning Objectives for Course Outcome 2**
	Identify and digitally photograph taxonomically important features of selected vascular plants.	2.1 Identify a minimum number of selected vascular plants in the field using available resources. 2.2 Acquire digital images of a minimum number of taxonomically important identification features for each specimen identified. 2.3 Present images in a digital herbarium format using PowerPoint or comparable software.
	Course Outcome 3	**Learning Objectives for Course Outcome 3**
	Classify a range of local ecosystems using current Ontario Ecological Land Classification tools at the Ecosite and Vegetation-Type level.	1.1 Competently apply field skills and techniques specific to the Ecological Land Classification system. a) Ecosite Describe a mineral soil profile from a soil pit and/or from extracted auger samples by competently delineating soil horizons and reliably collecting soil parameters (e.g., depth, textural class, coarse fragment classification) to enable classification to an ecosite using decision keys in Ecosites of Ontario. Describe an organic soil profile (e.g., von Post scale of decomposition) from extracted soil auger samples and identify wetland indicator plants to enable classification to an ecosite using decision keys in Ecosites of Ontario. Describe the composition and structure of ecosystem conditions through the use of ecosite fact sheets. Determine the potential value of a site for selected wildlife using non-spatial habitat suitability models incorporating Ecosite and forest development stages (Revised habitat suitability models for the Great Lakes - St. Lawrence and Boreal East forests, OMNRF).

	b) Vegetation-Type Reliably collect vegetation data to allow classification of Vegetation-Type (V-type) using the central Ontario site classification system.
Evaluation Process and Grading System:	

Evaluation Type	Evaluation Weight	Course Outcome Assessed
Assignments	37%	All
Field labs	23%	All
Identification tests	30%	1
Quizzes	10%	All

Date: June 19, 2018

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