SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: Plant Diversity

CODE NO. : NRT 218 **SEMESTER:** 3

PROGRAM: FISH AND WILDLIFE ,PARKS AND OUTDOOR RECREATION AND FORESTRY TECHNICIAN

AUTHOR: Mark Harvey

DATE: Aug 2003 **PREVIOUS OUTLINE DATED:** 2002

APPROVED:

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DEAN **DATE**

TOTAL CREDITS: 3

PREREQUISITE(S):

HOURS/WEEK: 3

I. COURSE DESCRIPTION:

Plant Diversity is a survey of natural aquatic and terrestrial ecosystems and associated plant communities found in central Ontario. A wide variety of plants will be identified . Emphasis will be placed on using plants for the classification of forest and wetland ecosystems using ecological classification systems designed for use in the local area.
Students will gain an appreciation for the the structure , function and diversity found in forested and aquatic plant communities. Non-timber plants will be considered as ecosystem indicator plants, wildlife food and habitat and as potential non- timber forest products . The taxonomy, biology and ecology skills and knowledge students pick –up throughout this course will be cumulative and
should help students to enter the job market with a marketable skill set.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Identify Forest Plant Species.

   Potential Elements of the Performance:
   The numbers of plants identified may vary slightly due to seasonal effects such as climate on the availability of plant materials

   - Identify all trees shrubs and herbaceous plants from previous Dendrology courses NRT102 and NRT107
   - Identify 17-23 fern species
   - identify 28-35 mosses
   - identify 3-6 club mosses
   - identify 3-5 horse tails
   - identify 12-17 lichens
   - identify 5-8 grasses
   - identify 3-6 sedges
   - identify 12-15 lichens
   - use these identification skills to determine vegetation type and ecosite classification units.

2. Identify 30-40 Aquatic plants

   Potential Elements of the Performance:
   - Identify 10-15 submergent plant species
   - identify 12-15 emergent plant species

- identify 5 -10 floating plant species
- Use these identification skills to determine vegetation and ecosite classification units

3. Identify up to (8) TerrestrialWetland Ecosystems.

Potential Elements of the Performance:

- using field guides key out 5-6 forest vegetation types in Central Ontario
- Using a field guide key out 2 wetland ecosites

4. Demonstrate a familiarity with forest ecosystem classification systems used across Canada.

Potential Elements of the Performance:

- List the basic parameters used in ecosystem classification
- Demonstrate knowledge of the ecological land classification system in Ontario
- Demonstrate ability to use vegetation keys in classifying ecosystems to the ecosite level
- relate characteristics of ecosites to moisture and nutrient status using ecosite ordination diagrams
- demonstrate ability to link ecosites to management applications
- identify landforms in the field and identify characteristics of land forms and relate these to biological and geological properties of ecosites
- using common and latin plant names and soil/ site terminology comprehend the information given in ecosystem classification fact sheets used in Ontario

5 Identify and describe selected plant features such as flowers , fruiting structures , leaf and stem morphology and use scientific nomenclature when identifying selected plants

Potential Elements of the Performance

- identify , describe and compare using botanical terminology the flowering and fruiting structures of the grasses, sedges and rushes
- identify ,describe and compare the reproductive structures and processes found in ferns, mosses and liverworts
- describe the relationship between plant and fungi in the lichens

- using taxonomic features and botanical nomenclature use keys to identify selected plant species
- use the binomial system of plant classification and latinized names to correctly identify plant species and genera of selected plants
- describe characteristics of selected families of plants.
- research botanical and ecological information using the internet

III. TOPICS:

1. In field and in the lab identify plants

   - Identify mosses and liverworts
   - Identify ferns
   - Identify grasses and sedges and rushes
   - Identify club mosses
   - Identify horsetails
   - Identify emergent aquatic plants
   - Identify submergent aquatic plants
   - Identify floating aquatic plants
   - Identify lichens

   Describe biological processes such as reproduction in selected plants and plant groups
   Use scientific nomenclature, terminology and taxonomy to describe and classify selected plants

   This will constitute **45%** of the course grade. Plant identification will be cumulative. Students will be expected to be able to identify all plants covered in the course by the end of the course.
   Plant ID tests will take place both inside and out doors including pop quizzes.
   Students will complete information and descriptive data sheets for 5 selected Pteridophytes using information gathered from internet web sites . This will constitute **10%** of the course grade

2. MOSS COLLECTION The project outlined below will be referred to as the moss collection
   Students under the direction of the instructor will prepare a moss

collection and submit the collection for grading. The moss collection will be organized and structured according to the instructor's specifications The collection must be submitted at the time and place specified by the instructor. The moss collection may also contain specified liverworts and lichens .
This will constitute **10%** of the course grade.

3. Use Forest and wetland ecosystem classification field manuals to assist in developing ecological descriptions of forested and wetland sites.
   - Use ecosystem classification keys to determine vegetation types
   - Use keys to determine ecosite type
   - Link ecosite type to wildlife and timber management activities
   - Link surficial geology and soils attributes to vegetation and ecosite type
   - Identify wetland ecosite types using wetland classification systems
   - Identify , describe and compare a wide variety of terrestrial ecosytems using biological and geological site parameters

   This will constitute **20%** of the course grade.

4. List and describe the basic key components of ecosystems , ecosystem diversity and interpret ecosystem classification systems .

   - Interpret the information on a vegetation type fact sheet from the Central Ontario FEC manual.
   - Interprete the information on an ecosite type fact sheet
   - Interpret the information on an ecological interpretations fact sheet
   - Interpret ecological ordination diagrams
   - List the classification units in ascending order of scale used in the Ontario Ecological Land Classification System.
   - Describe the components of an ecosystem classification system
   - List and describe the basic components of forest ecosystems, ecosystem diversity and identify the effects selected management practices have on ecosystem structure, function and diversity

   This will constitute **15%** of the course grade.

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

1, Field Guide to Forest Ecosystems of Central Ontario
2, Wetland Plants of Ontario
3, Forest Plants of Central Ontario
4, Plant Diversity Study Guide
5, A Guide to the Ferns of Grey and Bruce Counties, Ontario

V. EVALUATION PROCESS/GRADING SYSTEM:

The following semester grades will be assigned to students in postsecondary courses:
There will be 5 plant id tests
The best 4 id tests will count towards the final grade. Students may miss one id test with-out penalty

ID TESTS	45%
PTERIDOPHYTES ASSIGN.	10
MOSS COLLECTION	10
FINAL TEST	20
ASSIGNMENTS	15
TOTAL	100%

Please note that in order to receive an A+ grade in this course students will be required to show the ability to write the genus and specific epithet spelled correctly when referring to some of the plants covered in this course ON ID TESTS

Grade	Definition	Grade Point Equivalent
A+	90 - 100%	4.00
A	80 - 89%	3.75
B	70 - 79%	3.00
C	60 - 69%	2.00
F(fail)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject areas.	
U	Unsatisfactory achievement in field /clinical placement or non-graded subject areas.	

X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty

VI. SPECIAL NOTES:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 so that support services can be arranged for you.

Retention of course outlines:
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.

Plagiarism:
Students should refer to the definition of “academic dishonesty” in Student Rights and Responsibilities. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the polity of the department to employ a documentation format for referencing source material.

Course outline amendments:
The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar’s Office.

PLEASE NOTE:

- Five (5) identification plant tests will be given for a total of 45% of the course grade.
- The student's best 4 identification tests will be averaged towards their final grade.
- Students must attend 80% of the scheduled class time to receive C grade or better. Field trips are not optional. A student who misses 3 or more field trips may be asked to repeat the entire course.
- Students must wear appropriate clothing and safety equipment when on out door scheduled field exercises. This will normally include a hard hat, safety boots and a raincoat in wet weather. A student who comes prepared for an outdoor exercise in shoes will be marked absent and will not attend the class and this includes writing tests given in the outdoors.
- Any student who in the judgement of the instructor behaves inappropriately in scheduled classes or copies the work of another student without the instructor's permission, will be subject to all the terms and conditions in the student's rights and responsibilities hand book and may after, reviewing the situation with the instructor, be asked to leave the course with an R grade.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completeion of a challenge exam or portfolio

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.