SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: **Forest Plant Biology**

CODE NO. : NRT140-3 **SEMESTER:** **I**

PROGRAM: **Forestry Technician, Aboriginal Resource Tech.**

AUTHOR: **Jerry A. Zuchlinski, M.Sc.**

DATE: **Dec. 2001** **PREVIOUS OUTLINE DATED:** **June 2000**

APPROVED:

_____ _____

DEAN **DATE**

TOTAL CREDITS: **3**

PREREQUISITE(S): **None**

HOURS/WEEK: **2 Hrs Per Week X 16 Weeks**

I. COURSE DESCRIPTION:

This course provides the student with a practical understanding of the classification, structure and functioning of plants in general with special consideration for woody plants. The concepts presented in this course will have direct application in a number of courses in the Forest Technician Program.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. **Describe what a species is and how all species relate in their evolutionary history.**

   Potential Elements of the Performance:
   - List various characteristics used to practically distinguish different species
   - Describe traditional explanations for plant physiology and adaptations (i.e. origin of lenticels on white birch)
   - Describe and use the binomial system of classification
   - Explain phylogeny and apply the classification system

2. **Describe the structure and functioning of a plant cell**

   Potential Elements of the Performance:
   - List and describe the function and interactions of the following cell components: cell wall, cell membrane, nucleus, nucleolus, chloroplast, mitochondria, ribosomes, golgi apparatus, vacuoles and endoplasmic reticulum
   - Describe the structural roles of carbohydrates, lipids, amino acids and nucleic acids in cells

3. **Describe the anatomy, function and inter-relationships of specified structures of a plant.**

   Potential Elements of the Performance:
   - Describe cells and tissues of leaves, stems, and roots
   - Distinguish by anatomical features between flowering plants and gymnosperms and between monocots and dicots
   - Recognize cells and tissues of leaves, stems and roots from microscopic slides

4. **Describe metabolic processes in plants.**

   Potential Elements of the Performance:
   - Describe the processes involved in photosynthesis
   - Describe the processes involved in respiration
   - Describe the processes involved in transpiration
   - Describe the processes involved in water and nutrient uptake

5. **Describe plant growth process**.

   Potential Elements of the Performance:
   - Describe the various meristematic regions in plant including vascular cambium, cork cambium and apical meristems
   - Use native language terminology to describe plant parts
   - Discuss traditional uses of various plant parts
   - Describe the roles of auxins and gibberellins in plant growth
   - Distinguish between primary and secondary growth
   - Describe the process of annual growth in woody plants

6. **Describe reproductive processes in plants**

   Potential Elements of the Performance:
   - Differentiate between sexual and asexual reproduction
   - List and give examples of 6 different vegetative methods of reproduction
   - Distinguish between haploid and diploid conditions, gametophyte and sporophyte generations, spores and seeds

7. **Describe life cycles of various plant groups**

   Potential Elements of the Performance:
   - Distinguish between different stages in the life cycles of ferns, mosses, club mosses, conifers and flowering plants
   - Use native language terminology to describe life cycles
   - Draw from microscope slides specified life stages

III. TOPICS:

1. Classification of Plants
2. The Plant Cell
3. Plant Structure
4. Metabolic Processes
5. Plant Growth
6. Plant Reproduction
7. Plant Life Cycles

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Stern, K.A. . Introductory Plant Biology. Wm. C. Brown Publishers. 537pp.

V. EVALUATION PROCESS/GRADING SYSTEM:

Quiz	5%
Mid-term Tests 2@ 15%	30%
Final Test	25%
Lab Assignments	40%
TOTAL	100%

The value of lab assignments will be reduced at a rate of 10% per day for late submissions for a period of 5 days after the due date. After 5 days the lab assignments will have a value of zero. All lab assignments must be submitted regardless of lateness to pass the course.

Absence from a test will result in a zero with no opportunity for a make-up unless pre-arranged with the instructor and only under extreme circumstances as determined by the instructor.

No rewrites will be made available at semester end.

The following semester grades will be assigned to students in postsecondary courses:

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
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
U	Unsatisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see *Policies & Procedures Manual – Deferred Grades and Make-up*).	

NR	Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has not been possible for the faculty member to report grades.

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 postsecondary 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 policy 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.

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 completion 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.