

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: FOREST BIOLOGY

CODE NO.: BIO 126-3 **SEMESTER:** II

PROGRAM: FORESTRY TECHNICIAN / ABORIGINAL RESOURCE TECHNICIAN

AUTHOR: GORD STONE

DATE: MAY 1993 **PREVIOUS OUTLINE DATED:** JULY 1992

APPROVED:  **DATE** July 21/93

DEAN **DATE**

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TOTAL CREDIT HOURS: 48

PREREQUISITE(S): SCI115 - Environmental Science

I. PHILOSOPHY/GOALS:

A study of the biodiversity of life essential to a career in resource management. Biological diversity refers to the variety and variability among living organisms and the ecological complexes in which they occur. If we are to manage ecosystems, we need to know something about the living organisms that are found in those ecosystems.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course, the student will:

1. Describe the scientific classification system for any group of living organisms.
2. Distinguish between the processes of mitosis and meiosis, and their roles in cell division.
3. Compare the major characteristics of viruses, bacteria, blue-greens and protista.
4. Describe the life cycles and importances of fungi.
5. Discuss the similarities and differences between the life cycles of mosses, ferns, gymnosperms and angiosperms.
6. Distinguish between monocots and dicots.
7. Discuss the growth development of animal structures and functions in flatworms, tapeworms and roundworms.
8. Distinguish among the following groups of invertebrates: annelida, mollusca, arthropoda.
9. Dissect and identify (internal and external features of the earthworm, insects, and crayfish.
10. Discuss body system similarities and differences among agnatha, chondrichthyes, osteichthyes, amphibia, reptilia, aves and mammalia.
11. Dissect and identify internal and external features of an amphibian and a fish and a mammal.

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III. TOPICS TO BE COVERED:

WEEK	TOPIC	ASSIGNMENT/TESTS (page)
1	Unit 1: Cell Division	Learning Activity 1 (14) Discussion Question (22) Learning Activity 2 (23)
2	Unit 2: Viruses and Primitive Life Forms	Learning Activity 3 (43) Assignment 1 (44)
3	Unit 3: Kingdom Protista	Learning Activity 4 (60) Project 1 - Essay
4	Unit 4: High Plant Life - Multi-Cellled Algae & Primitive Land Forms	Learning Activity 5 & 6 (69,78)
5	Unit 5: Higher Plant Life - The Seed Plants	Learning Activity 7 (92)
6	Unit 5: Higher Plant Life - The Seed Plants and Review	Assignment 2 (94)
7	Unit 6: Fungi	Learning activity 8 (103) Project 2 - Test Questions
8	Unit 7: Lower Animal Life Simple Invertebrates	Learning Activity 9 & 10 (131,134)
9	Unit 8: Higher Invertebrates - The Arthropods	Learning Activity 11 (151)
10	Unit 9: Aquatic Chordates	Learning Activity 12 (167) Assignment 3 (169)
11	Unit 10: More Advanced, Terrestrial Chordates - Aquatic Chordates	
12	Unit 10: More Advanced, Terrestrial Chordates - Birds and Mammals	Learning Activity 13,14,15 & 16 Assignment 4 (197) Project 3 - Biodiversity Lesson Plan

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IV. LEARNING ACTIVITIES:

Learning activities, discussion questions, and assignments are preparation for each of the three projects.

Project 1 is an essay that answers the question: "Why Study Forest Biology". The students are expected to: 1) use what they have learned in the previous 3 units; and 2) relate that knowledge to management of ecosystems.

Project 2 is the preparation of a test. The students are expected to choose 10 questions, give the appropriate answers, and tell why they chose these particular questions.

Project 3 is the preparation of a lesson plan on "Biodiversity" to be taught to public school children. Students will be provided with examples of lesson plans.

V. EVALUATION METHODS:

3 major projects	30%	A+ = 95-100%
14 labs	60%	A = 85-94 %
Attendance	10%	B = 75-84 %
	<u>100%</u>	C = 60-74%
		R = Less than 60%

VI. REQUIRED STUDENT RESOURCES:

Forest Biology Study Guide
Forest Biology Lab Manual
Dissecting Kit
Laboratory Coat
Plain lined paper & 2H pencils for drawings

VII. ADDITIONAL RESOURCE MATERIALS:

Periodicals/Journals: The following periodicals are available in the LRC and are recommended for interested student readings in Biology:

Forestry Chronicle, Special Edition on Biodiversity, Aug. 1991 Vol. 68 No. 4; Canadian Institute of Forestry.

Nature Canada
Seasons
Scientific American
OMNI

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VII. SPECIAL NOTES:

Generally the student should come to labs prepared to perform dissections. Lab coats and dissecting kits will be required. Procedures for laboratory drawings will be explained prior to Laboratory Session 1.

Students with special needs (e.g.. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.

- 1. Scientific name - must be underlined.
- 2. Common name.
- 3. Condition of specimen (is it living, preserved, wet mount, prepared slide?)
- 4. Portion of specimen (is it a whole mount or a section; x-section, longitudinal section or a radial section?)
- 5. View (What view are you looking at - dorsal, ventral or lateral?)
- 6. Sex (male or female?)
- 7. Scale
- 8. What is the purpose of the drawing/lab?

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GUIDE FOR LAB DRAWINGS

General

Our purpose is not to produce artists. What is desired is a clear-cut delineation of material seen and studied in the lab. Showing its proper form and proportion. As you study the material and make the drawings, checking the specimens for various parts, you will realize that drawings are excellent aids to learning. Your powers of observation should develop quite quickly.

Draw the material as you see it! The drawings must show what you see, and what you know. Do not copy from the textbook or other students work! All work should be done in the lab.

Format

All lab drawings shall follow the format of the attached sample drawing.

Title (see illustration)

1. Scientific name - must be underlined.
2. Common name.
3. Condition of specimen
(is it living, preserved, wet mount, prepared slide?)
4. Portion of specimen
(is it a whole mount or a section; x-section, longitudinal section or a radial section?)
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(What view are you looking at - dorsal, ventral or lateral?)
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Shading (Stippling Style Only)

Keep drawings as simple as possible. Only stipple when necessary to show a difference in texture, colour or depth. Stipple deliberately holding pencil vertically. Placing the dots close together or further apart will give a variety of shading.

N.B. - FOLLOW THESE INSTRUCTIONS CAREFULLY UNTIL YOU ARE ABLE TO PUT THEM INTO EFFECT AUTOMATICALLY.

SUBMISSION OF BIOLOGY LABS

1. All lab drawings must be completed before the end of the lab period.
2. Drawings may be requested at any time:
 - at the end of a lab
 - next week or at any later lab
 - keep all completed labs in your lab book, and bring to each class. Lab books may be requested for grading at anytime and must be complete.
3. Any labs requested to be handed in will be marked out of 10. Labs not received when requested will receive a 0.
4. Lab drawings are part of the course material and could be on a test.
5. Not all labs will be requested for marking. Labs not requested, will be discussed in class to allow students to correct and complete drawings.
6. Some labs will be marked using other procedures; eg., a quiz or labs may be inspected and checked as completed.
7. All labs must be completed before a grade can be given.
8. Individual labs and your lab book will be graded for accuracy, neatness, completeness and format.

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