

Revised:
Sept. '87

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

COURSE OUTLINE

Course Title: FOREST BIOLOGY

Code No.: BIO 126-3

Program: FOREST TECHNICIAN

Semester: II

Date: JUNE, 1986

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New: _____ Revision: X

APPROVED:


Chairperson

Aug 7/86
Date

CALENDAR DESCRIPTION

FOREST BIOLOGY

BIO 126-3

COURSE NAME

COURSE NUMBER

PHILOSOPHY/GOALS:

A study of the science of life essential to a career in resource management; the classification of living organisms, particularly those of algae, higher plants, freshwater, and terrestrial animals found in Ontario forests and freshwater ecosystems; plant and animal life cycles, and introductory animal anatomy.

METHOD OF ASSESSMENT:

Evaluation

4 Term Test	54%
Quizzes	12%
Labs	30%
Attendance	4%
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	100%

Grading

A = 80%
B = 70%
C = 60%

Rewrites

Students receiving a final grade of 60% based on term tests and lab results will pass the course. Students receiving a final grade between 55-59% will rewrite the unit test on which performance was poorest. Students receiving less than 55%, or failing a rewrite will write a final exam on the total course.

Successful completion of a rewrite will be given a C grade.
Successful completion of a final exam will be given a C grade.

TEXTBOOK(S) AND SUPPLIES

Needham & Needham, A GUIDE TO THE STUDY OF FRESHWATER BIOLOGY

Arms & Camp, BIOLOGY

Dissecting Kit

2H pencil

eraser

plain bond paper

ATTENDANCE is absolutely necessary to keep on top of the course.

SCIENTIFIC WORDS must be spelled correctly. One-half mark will be taken off for incorrectly spelled words.

MANUAL - bring to each lab. Read textbook and lab manual prior to each lab period.

LAB DRAWINGS - use only plain bond paper, one side only. All drawings will be done with a 2H pencil. All lettering will be freehand. Staple pages together (see guide for lab drawings).

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?)
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?

Shading (Stippling Style Only)

Keep drawings as simple as possible. Only stipple when necessary to show a difference in texture. Colour OD 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 notebook, and bring to each class
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 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 may be inspected and checked as completed.
7. All missed labs must be completed within one week.
8. All labs must be completed before a grade can be given.

COURSE OUTLINE

WEEK	TOPIC
1	Introduction Origin of Life Classification - five Kingdoms
2	Mitosis and Meiosis
3	Primitive life forms - Monera - Protista
4	Protista Plantae - Algae TEST
5	Plantae - Mosses and Ferns
6	Plantae - Gymnosperms
7	Plantae - Angiosperms
8	Fungi Protozoans TEST
9	Animalia - flatworms - earthworms Introduction to dissection
10	Animalia - Arthropods (crayfish)
11	Animalia - Insects
12	Animalia - Fish TEST

Course Outline cont...8

WEEK	TOPIC
13	Animalia - Amphibians - Reptiles - Birds
14	Animalia - Mammals
15	Animalia - Mammals
16	TEST

FOREST BIOLOGY - PERFORMANCE OBJECTIVES**UNIT I: Introduction to Classification of Organisms**

To successfully complete this unit, the student must satisfactorily be able to:

1. State the scientific approach to the origin of life.
2. Differentiate between the five kingdoms: Monera, Protista, Fungi, Plantae, Animalia.
3. Design a classification system for a given group of objects.
4. List seven levels of classification for living organisms, giving one example for each level.

UNIT II: Introduction to Cell Reproduction in Organisms

To successfully complete this unit, the student must satisfactorily be able to:

1. Compare the process of mitosis and meiosis in both plants and animals.
2. Illustrate spermatogenesis and oogenesis.

UNIT III: Primitive Life Forms - Monera and Protista

To successfully complete this unit, the student must satisfactorily be able to:

1. Compare major characteristics of Monera and Protista.
2. Identify three types of bacteria.
3. Compare major characteristics of bacteria and blue-green algae.
4. Distinguish between blue-green algae and true algae.
5. Compare characteristics of different Phyla of true algae:
 - Chlorophyta - green algae
 - Charophyta - stoneworts
 - Euglenophyta - green-line algae
 - Chrysophyta - golden-brown algae

**UNIT IV: Lower Life Forms - Protista
- Fungi**

To successfully complete this unit, the student must satisfactorily be able to:

1. Compare the four classes of Protozoa: Zoomastigina, Sporozoa, Ciliophora, Sarcodina, giving an example for each.
2. Compare the four major classes of Fungi: Zygomycetes, Ascomycetes, Basidiomycetes, and Myxomycetes, giving an example for each.
3. Illustrate the difference between Fungi and Plantae.

UNIT V: Higher Life Forms - Plantae

Bryophyta - mosses, liverworts
- ferns

Tracheophyta - Gymnospermae
(conifers)
- Angiospermae
(flowering plants)

To successfully complete this unit, the student must satisfactorily be able to:

1. Distinguish between Bryophyta and Tracheophyta using five different characteristics.
2. Draw life cycles for: moss, fern, gymnosperm and angiosperm.
3. List morphological differences between class Gymnospermae and Angiospermae.
4. Compare Gymnosperm and Angiosperm reproductive cycles.
5. Differentiate between subclass Monocotyledonae and Dicotyledonae.

**UNIT VI: Lower Invertebrates: Animalia
- Platyhelminthes**

To successfully complete this unit, the student must satisfactorily be able to:

1. Identify and describe patterns of animal life.
2. Describe growth and structure in the animal kingdom.

3. Compare classes of Platyhelminthes: Turbellaria, Trematoda, Cestoda and Nematoda.

UNIT VII: Higher Invertebrates: Animalia
 - Annelida
 - Mollusca
 - Arthropoda

To successfully complete this unit, the student must satisfactorily be able to:

1. Distinguish segmental worms from flatworms and nematodes.
2. Compare Oligochaeta and Hirudinea.
3. Dissect and identify various parts of a segmented worm.
4. Differentiate between class Arichnida, Crustacea, and Insecta.
5. Distinguish between three groups of insects: Ametabola, Hemimetabola, and Holometabola.
6. Identify the following orders, using three characteristics and one example: Coleoptera, Lepidoptera, Diptera, Hymenoptera and Homoptera.
7. Identify external features of an insect.
8. Identify external features of a crayfish and give a function for each.

UNIT VIII: Vertebrates: Animalia
 - Agnata
 - Chondrichthyes
 - Osteichthyes
 - Amphibia
 - Reptilia
 - Aves
 - Mammalia

To successfully complete this unit, the student should satisfactorily be able to:

1. Complete the major characteristics of the three classes of fish.
2. Dissect and identify internal and external parts of a fish.
3. Contrast soft and spiny rayed fish using a labelled diagram.

4. Contrast Amphibia, Reptilia, Aves, and Mammalia using five different traits.
5. Dissect and identify internal and external parts of a frog.