

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: Biology

CODE NO. : BIO094 **SEMESTER:** ongoing

PROGRAM: Academic Upgrading

AUTHOR: Doug Cressman

DATE: January, 2010 **PREVIOUS OUTLINE DATED:** n/a

APPROVED:

	_____ CHAIR	_____ DATE
TOTAL CREDITS: n/a		

PREREQUISITE(S): General Science, or permission of instructor

HOURS/WEEK: 5

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For additional information, please contact Penny Perrier, Chair
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I. COURSE DESCRIPTION:

This course will explore topics dealing with cellular biology, including cell energy and membrane transport, microbiology including use of micro-organisms in biotechnology, basic animal and plant structure and physiology, and finally environmental science, including ecosystems, population dynamics and human impact on the environment.

This curriculum is preparatory for continuation in a post secondary college program.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to understand and to utilize appropriate terminology related to:

1. Cells, biochemical compounds, membrane transport and cell energy.**Potential Elements of the Performance:**

- List the main points of cell theory
- Explain the functions of organelles
- Identify and describe 4 major biochemical compounds
- Describe the role of enzymes in biochemical reactions
- Define cell membrane transport processes
- List features of each stage of mitosis
- Compare respiration and photoxynthesis

2. Taxonomic differences, growth and reproduction, and symbiotic relationships of Micro-organisms.**Potential Elements of the Performance:**

- Compare representative bacteria, protists, viruses and fungi in terms of shape, motility, role and connection to human disease
- Describe modes of reproduction in micro-organisms
- Compare genetic material of viruses and bacteria with those of eukaryotic cells
- Illustrates uses of viruses and bacteria in biotechnology and genetic engineering
- Evaluate implications of viral, bacterial and fungal infections on a human host

3. Digestion, Circulation, Respiration, Homeostasis, locomotion and Reproduction of humans and other animals.**Potential Elements of the Performance:**

- Describe anatomy and physiology of musculo-skeletal,

- circulatory, nervous, endocrine and reproductive systems
 - Explain causes, symptoms and treatments of major disorders of the above systems
 - Define homeostasis and explain the role of the endocrine and central nervous systems in maintaining homeostasis
 - List the features of each stage of meiosis
 - Apply principles of genetics to solve simple patterns of inheritance
4. Plant tissues, life cycles, metabolic processes, growth and maintenance of plants,
Potential Elements of the Performance:
- Classify plants by identifying characteristics
 - Describe structure and physiology of plant tissues
 - Explain the steps in the life cycle of a plant
 - Describe the process of growth and differentiation in plants
 - Identify the importance of plant diversity in maintaining ecosystems
 - Explain the role of aquatic plants in the purification of waste or run-off water
5. Distribution of life, ecosystems and communities, population dynamics and human impact on the environment.
Potential Elements of the Performance:
- Demonstrate an understanding of taxonomy by classifying organisms from a local ecosystem
 - Use energy pyramids to explain the mechanisms and interactions of a food chain
 - Explain the ecological role of representative organisms from each of the kingdoms of life
 - Describe the flow of matter through the biogeochemical cycles
 - Define population growth and the factors influencing it

III. TOPICS:

1. Cellular Biology
2. Microbiology
3. Animal Anatomy and Physiology
4. Plant Structure and Physiology
5. Environmental Science

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Di Giuseppe, Fraser, LeDrew and Roberts. Biology 11: College Preparation. Thomson Nelson. 2003

Independent Learning Centre. Biology. SBI3C-A. Units 1-5

V. EVALUATION PROCESS/GRADING SYSTEM:

Upon the completion of each unit, students will be required to pass a unit test. A passing grade is 70%. There is no final exam.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>
A+	90 – 100%
A	80 – 89%
B	70 - 79%
F (Fail)	69% and below
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI. SPECIAL NOTES:**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.

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.

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations. Announcements, news, the academic calendar of events, class cancellations, your learning management system (LMS), and much more are also accessible through the student portal. Go to <https://my.saultcollege.ca>.

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.