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

COURSE OUTLINE

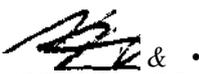
COURSE TITLE: GENERAL SCIENCE (A)

CODE NO.: SCI 097-4 SEMESTER: I or II

PROGRAM: GENERAL ARTS & SCIENCE

AUTHOR: MANFRED ENGEL

DATE: JAN. 1992 PREVIOUS OUTLINE DATED: AUG. 19 88

APPROVED:  & .  
DEAN, "SCHOOL OF SCIENCES &  
NATURAL RESOURCES

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DATE

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GENERAL SCIENCE (A)

SCI 097-4

**COURSE NAME**

**COURSE NUMBER**

**TOTAL CREDIT HOURS: 64**

**PREREQUISITE(S): NONE**

**I. PHILOSOPHY/GOALS:**

This is a preparatory course in General Science. It gives the student an understanding of how the scientist works and provides some specific knowledge of Life Science and Chemistry.

**II. STUDENT PERFORMANCE OBJECTIVES:**

Upon successful completion of this course the student will be able to:

1. Be familiar with the scientific method and scientific law.
2. Be able to identify the characteristics that define life, hereditary traits and the functioning of the human body.
3. Be familiar with ecological concepts.
4. Be familiar with the properties and atomic structure of matter, the classifications of elements and basic chemical reactions.

**III. TOPICS TO BE COVERED:**

- 1) Introduction to Life
- 2) Heredity
- 3) The Human Body
- 4) Ecology
- 5) Distribution of Life
- 6) Properties of Matter
- 7) Atoms and Molecules
- 8) Chemical Elements
- 9) Chemical Reactions

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**IV. LEARNING ACTIVITIES:**

**REQUIRED RESOURCES:**

LIFE SCIENCE (UNIT ONE  
IN TEXT)

PROLOGUE: Introduction to  
Science

1. Introduction to Life  
(8 hours)

Complete Sections 1-1 to 1-8 in  
the Activity Book.

1. Characteristics of Life

1. The Cell

1, One-Celled Organisms

1 Levels of Organization

1 Photosynthesis

1 Classification

1.8 Variety of Life

Viruses

Test 1

Heredity (6 hours)

Complete Sections 2-1 to 2-9 in  
the Activity Book.

2.1 From Generation to  
Generation

2.2 Mitosis

2.3 Asexual Reproduction

2.4 Sexual Reproduction

2.5 Dominant and Recessive

2 Traits

2 Genes and Chromosomes

2 DNA

2 Mutations

Plant and Animal Breeding

The Human Body (7 hours)

Complete Sections 3-1 to 3-7 in  
the Activity Book.

3 Skeleton and Muscles

3 Circulatory System

3 Breathing

3 Digestion and Waste  
Removal

3.5 Nervous System

4-6 Endocrine system

Alcohol, Tobacco and  
Other Drugs

Complete assigned projects on  
pg. 35 of the Activity Book.

Test 2

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**IV. LEARNING ACTIVITIES:**

- 4. Ecology (6 hours)
  - 4.1 Ecosystems
  - 4.2 Food Chains and Food Webs
  - 4.3 Food Pyramids
  - 4.4 Populations
  - 4.5 Succession
  - 4.6 Habitat Destruction
  - 4.7 Endangered Species
- 5. Distribution (6 hours)
  - 5.1 Adaptations
  - 5.2 Biomes
  - 5.3 Forest Biomes
  - 5.4 The Desert Biome
  - 5.5 The Grassland Biome
  - 5.6 Mountain Biomes
  - 5.7 Life Zones in the Ocean

**REQUIRED RESOURCES:**

- Complete Sections 4-1 to 4-7 in the Activity Book.
- Complete assigned projects on pg. 47 and 48 of the Activity Book.
- Complete assigned sections and projects in Work Book.

CHEMISTRY (UNIT TWO  
IN TEXT)

Properties of Matter  
(7 hours)

- 6 Mass, Volume and Density
- 6 States of Matter
- 6 Solutions
- 6 Separating Mixtures
- 6 Elements and Compounds
- 6.6 Combustion

- Complete Sections 6-1 to 6-6 in Work Book and assignment on Elements and Compounds and other assigned projects on Properties of Matter.

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**IV. LEARNING ACTIVITIES:**

**REQUIRED RESOURCES:**

Atoms and Molecules  
(7 hours)

Complete Sections 7-2 to 7-6 in Work Book and assigned projects in Chapter 7.

- 7 1 Dalton's Atomic Model
- 7 2 Symbols and Formulas
- 7 3 Chemical Equations
- 7 4 The Atomic Model is Modified
- 7 5 Line Spectra
- 7 6 The Current Model of the Atom

Test 4

8 Chemical Elements  
(7 hours)

Complete Sections 8-1 to 8-7 in the Work Book and assigned projects and review on pg. 96

- 1**
- 1 1 Metals and Non-metals
  - 1 2 The Noble Gases
  - 8 3 The Halogens
  - 8 4 The Alkali Metals
  - 8.5 The Periodic Table
  - 8 6 Bonding Elements
  - 8 7 Carbon

9 Chemical Reactions

Complete Sections 9-1 to 9-6 in the Work Book and assigned projects,

- 9.1 Energy and Changes of State
- 9.2 Energy and Chemical Reactions
- 9.3 Oxidation and Reduction
- 9.4 Electrochemical Cells
- 9.5 Acids and Bases
- 9.6 Rates of Reaction

Test 5

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**V. EVALUATION METHODS: (INCLUDES ASSIGNMENTS, ATTENDANCE REQUIREMENTS ETC.)**

Class Participation	25%
a) Attendance - 80% required	
b) Punctuality in assignments	
Laboratory and Homework Assignments	25%
Tests	50%
Topic tests are of equal value	
	100%
Grades	
A+- 90 - 100%	
A - 80 - 89%	
B - 70 - 79%	
C - 60 - 70%	

The minimum passing grade is 60% this being a composite derived from the overall course assessment. Grades from 50% to 60% will allow a student the right to an overall course supplemental provided that the attendance requirement has been met, and all laboratory and homework assignments are complete and submitted. All lower grades or failure to meet other requirements specified above will result in a failure.

The instructor retains the right to modify the course content during the duration of the course.

**VI. REQUIRED STUDENT RESOURCES:**

TEXTBOOKS

- 1) Brockway, C.S.; Gardner, R.; Howe, S.F.; GENERAL SCIENCE, Allyn and Bacon, Inc., Prentice Hall.
- 2) Brockway, R.; Howe, S.F.; Husted, B.; Jones, H.; Rieck, G.W.; GENERAL SCIENCE (ACTIVITY BOOK), Allyn and Bacon, Inc., Prentice Hall

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**VII. SPECIAL NOTES:**

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.