



A. Division: Educational & Student Services Division Date: March 2, 1988

B. Department: Student Services & Developmental Education New Course:

Revision of Course Information Form:

Dated: January 17, 1990

C. DVST 370 D. Science - Intermediate E. 3  
Subject & Course No. Descriptive Title Semester Credits

F. Calendar Description:

This course will introduce the student to the methods by which scientific knowledge is gained and organized. Topics are selected from three major areas of study: biology, chemistry and physics; these topics include science and the scientific method, the cell, human biology, introductory chemistry, energy simple machines and electricity. Other topics of interest to students may be investigated.

Summary of Revisions:  
(Enter date and Section Revised)  
e.g. 1982-08-25  
Section C,E,F, and R.

K

G. Type of Instruction:	Hours Per Week / Per Semester
Lecture	_____ Hrs.
Laboratory	_____ Hrs.
Seminar	_____ Hrs.
Clinical Experience	_____ Hrs.
Field Experience	_____ Hrs.
Practicum	_____ Hrs.
Shop	_____ Hrs.
Studio	_____ Hrs.
Student Directed Learning	_____ Hrs.
Other (Specify)	<u>4</u> Hrs.
<b>Total</b>	<u>4</u> Hrs.

H. Course Prerequisites:  
**DVST 210 & DVST 360 or  
Permission of Instructor**

I. Course Corequisites:  
**None**

J. Courses for which this Course is a Pre-requisite:  
**DVST 470, 472, 474, 476**

K. Maximum Class Size:  
**18**

L. College Credit Transfer

College Credit Non-Transfer

Non-Credit

M. Transfer Credit: Requested   
Granted

(Specify Course Equivalents or Unassigned Credit as Appropriate)  
U.B.C.  
S.F.U.  
U. Vic.  
Other

*Billy Macfarlane*  
\_\_\_\_\_  
Course Designer(s)

*[Signature]*  
\_\_\_\_\_  
Director / Chairperson

*[Signature]*  
\_\_\_\_\_  
Divisional Dean

*P.H. Oregan*  
\_\_\_\_\_  
Registrar

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**N. Textbooks and Materials to be Purchased by Students (Use Bibliographic Form):**

Students are required to supply three-ring binder, paper, pen and pencil.

All other materials and textbooks will be available on loan from the instructor when needed.

Where possible, copies of those textbooks which are only for use in the classroom may be borrowed from the library or purchased from the bookstore.

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Complete Form with Entries Under the Following Headings: O. Course Objectives; P. Course Content;  
Q. Method of Instruction; R. Course Evaluation

**O. Course Objectives**

The aims of the course are to provide students with opportunities to:

1. increase their understanding of the concepts and principles of science by considering topics selected from biology, chemistry and physics;
2. acquire the skills and understand the processes and applications of science;
3. recognize the uses and limitations of scientific methods;
4. improve critical thinking skills.

**P. Course Content**

The course consists of the following topics:

1. Science and the Scientific Method
  - a) definitions and methodology
  - b) experimental design and organizing data
  - c) measurement and SI units
  - d) science and technology
2. The Cell
  - a) microscopy
  - b) cell theory, structure and function
  - c) cell processes
  - d) cell division
  - e) cells, tissues, organs, systems
3. Human Biology
  - a) skeletal system
  - b) circulatory system
  - c) respiratory system
  - d) digestive system
  - e) nervous system

...continued...

4. Introductory Chemistry

- a) matter - measurement, states and properties
- b) elements
  - symbols
  - periodic table
  - atomic structure
  - isotopes and atomic mass numbers
- c) compounds and formulas
  - bonding
  - oxidation numbers
  - writing formulas and naming compounds
  - polyatomic ions

5. Energy

- a) basic concepts - force, work, energy, power
- b) forms of energy
  - kinetic and potential
  - Law of Conservation of Energy
  - interchange of forms
- c) energy harnessed
  - thermal energy - states of matter, heat transfer, specific and latent heat
  - electrical energy - static and current electricity

6. Simple Machines

- a) force and work
- b) measuring work and mechanical advantage
- c) simple machines - levers, inclined planes, wedges, screws, pulleys, wheel and axle
- d) other machines - gears, movable and compound pulleys, hydraulic systems

7. Electrical Circuits

- a) AC and DC currents
- b) measuring current, resistance and voltage
- c) Ohm's Law and related Problems
- d) series and parallel circuits
- e) switches, fuses, breakers
- f) safety

...continued...

#### Q. Method of Instruction

A combination of different instructional methods will be used in order to balance instructional efficiency with individual students needs. Small group instruction, individual assistance (in lab tutorial or scheduled appointments) and student directed learning will be selected where appropriate and possible.

#### R. Course Evaluation

A mastery model of on-going evaluation will be used. A student will have completed the course when he/she has demonstrated through satisfactory completion of exercises and assignments that the course objectives have been achieved.

Where formal tests of specific skills are used, mastery will be defined as a score of 80 percent or more.

Progress will be monitored on a regular basis by the instructor in consultation with each student.

The student will be expected to maintain regular attendance and progress and to undertake independent learning as directed. Regular feedback and informal progress reports will be available from the instructor.