

GRANDE PRAIRIE REGIONAL COLLEGE
ACADEMIC UPGRADING DEPARTMENT

NOV 20 2000

COURSE OUTLINE

SC0100 : SCIENCE AND SOCIETY

INSTRUCTOR: Bill Shaw
OFFICE: C207
PHONE: 539 – 2713 Internet Address: Shaw@gprc.ab.ca
OFFICE HOURS: As posted on the Office door, or by appointment
TEXT: Science Matters Robert M. Hazen & James Trefil
SUPPLIES: Plastic folder to hold loose-leaf, stapler, pen, pencil & ruler.

COURSE GOALS:

This course is intended to (a) provide students with the basic knowledge, understanding, and appreciation of science and science-related issues needed to be an informed citizen, (b) provide some preparation for students entering 0100 level science courses at GPRC.

COURSE CONTENT:

Through the course there will be an emphasis on two major themes for science in our times: (1) **science**: what it is and how it works, and (2) **science issues in society**: how science and technology affect our lives, what the different sides of the issues are, and what we should do about it. The exact details of the course will depend on class and instructor interests, and on which current science-technology issues are interesting and important.

Unit#1:

The Environment in Danger
- ecology & ecosystems
- interdependence
- food chains & webs
- greenhouse effect
- acid rain
- ozone depletion

Societal Issues:

Is the environment in danger?
Should we protect the environment?
What can people do about it?

Unit#2

Scientific Method

- science- what is it & what it isn't
- how science works
- technology: what is it
- how technology relates to science

Societal Issues:

What effects do science and technology have on society?
Is science and technology good, bad, or neutral?
Should science and technology be controlled? (And by whom?)

Unit#3

Chemicals in our Environment

- classification of matter
- atoms, molecules, & compounds
- chemical reactions
- solutions
- air/water pollution & hazardous waste
- food & food additives

Societal Issues:

What should we do about pollution and waste disposal?
Should we be worried about chemicals in our diet, and food additives?

Unit#4

Cells, DNA, & Genes

- cells: the unit of life
- genes & the genetic code
- reproduction & inheritance
- biotechnology

Societal Issues:

How much control should humans have over other living things? Should we interfere with nature (gene therapy, genetic screening, biotechnology)?

Unit#5

Energy and the Environment (Physics)

- What is physics?
- Understanding matter (mass & volume)
- Units & derived units
- scientific notation
- significant digits
- different forms of energy
- laws of motion
- alternate energy sources
- SI unit of measurement

Societal Issues:

How safe is electromagnetic radiation in our environment?
What energy sources should we be using now, and in the future? What can people do to save energy?

Unit#6

Exploring Earth's weather

- What is weather?
- Air pressure
- Winds
- What is Climate?
- What causes climate?

Societal Issues:

Weather predicting is important because it can save lives and property. Meteorologists use a variety of techniques to collect data and predict weather.

Teaching Methods:

Some or all of the following, according to student needs and interest:

- Lecture/discussion: with an emphasis on class participation - most classes will be of this type.
- Small - group activities: small group discussion, projects, exercises, presentations.
- Practical - activities: in class and in lab; observing hypothesis, collecting data, and interpreting data, classifying, problem solving, and so; as a whole class, in groups and in pairs.
- Individual activities: assignments based on newspaper/magazine articles, individual presentations, research (library) project.
- Other possibilities: visits to places of scientific interest, guest speakers, your suggestions.

EVALUATION:

Tests	35%
Assignments	5%
Lab Reports	15%
Plato Activities	10%
Final Exam	<u>35%</u>
Total	100%

Tests and Exams:

There will be a test (50 min.) about every two weeks or so, for a total of six tests for the course. Absence from tests, labs or exams will result in a zero for that test, lab or exam unless a previous arrangement is made with the instructor for medical or other legitimate reasons.

TOTAL 54 WORKING DAYS!