

COURSE OUTLINE

SCIENCE 100: SCIENCE AND SOCIETY

GPRC Fall 1993

Instructor: Keith Roscoe**Office:** C 213**Phone:** 539-2095 (office) 539-6842 (home)**Time & Place:** Mon. Wed. Fri., 14:00, B208; Tues.Thurs., 14:30, B206.**Office Hours:** as posted on my office door, or by appointment.**Text:** none (handouts and other materials will be provided)**Course Goals:**

This course is intended to (a) provide students with the basic knowledge, understanding and appreciation of science and science-related social issues needed to be an informed citizen, (b) provide some preparation for students entering 110 level science courses at GPRC.

Course Content:

Throughout 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.

<u>UNIT</u>	<u>CONCEPTS</u>	<u>EXAMPLE ISSUES</u>
#1 Science & Technology	<ul style="list-style-type: none"> • science-what it is & what it isn't • how science works • technology: what it is • how technology relates to science 	<ul style="list-style-type: none"> What effects do science and technology have on society? Are science & technology good, bad, or neutral? Should science and technology be controlled? (And by whom?)
#2 The Environment in Danger	<ul style="list-style-type: none"> • ecology & ecosystems • interdependence • food chains & webs • greenhouse effect • acid rain • ozone depletion 	<ul style="list-style-type: none"> • Is the environment in danger? • Should we protect the environment? • What can people do about it?
#3 Cells, DNA & Genes	<ul style="list-style-type: none"> • cells: the unit of life • genes & the genetic code • reproduction & inheritance • biotechnology 	<ul style="list-style-type: none"> • How much control should humans have over other living things? • Should we be interfering with nature (gene therapy, genetic screening, biotechnology)?

#4 Chemicals in our Environment

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

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

#5 Energy and the Environment

- different forms of energy
- energy conservation
- laws of motion
- electromagnetic radiation
- alternative energy sources

- 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?

Teaching Methods:

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

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

Evaluation:

Tests and Quizzes	25%
Assignments & Lab Reports	25%
Midterm Exam	10%
Final Exam	30%
	<u>100%</u>

Tests and Exams:

There will be a test (50 min) about every two weeks or so, for a total of five tests for the course (see course schedule for dates). Quizzes (5-10 min) will be given at intervals between tests. Absence from tests, quizzes, or exams will result in a mark of zero for that test or exam unless a previous arrangement is made with the instructor for medical or other legitimate reason.

Student Responsibilities:

Here are some of your basic responsibilities as a student, from the GPRC calendar:

- *arrive on time and remain for the duration of scheduled classes or activities.*
(Regular attendance is expected, and attendance is taken. Students who miss more than 20% of classes may be barred from writing the final exam. Classes will start on time, so please arrive a few minutes early.)
- *respect instructor's right to expect assignments to be submitted at the times specified, and establish penalties for failure to comply with deadlines.*
(failure to submit assignments and reports on time will result in late penalties:
1 day late= -25%; 2 days late= -50%, 3 days late= -100%)
- *respect an instructor's right to expect assignments to be neatly presented.*
(submit lab reports and any assignments following the required format exactly)
- *respect an instructor's right to expect that any work submitted by the student is original, and to know what plagiarism and other forms of cheating are.*
- *respect an instructor's right to appropriate classroom behaviour...the instructor has the right to exclude a student from learning activities should a student be disruptive.*
- *write tests and examinations at times scheduled by instructor.*
- *assume responsibility for course work and assignments missed.*

How To Be Successful in Science 100:

To get the best possible grades you can, and to generally improve your learning and student skills, here are some tips from instructors and successful students:

IN CLASS

ATTENDANCE

- Come to *all* classes, and arrive *early*.
- Don't let yourself miss classes except for absolute necessities or emergencies.
- Missing more than a few classes will lead to gaps in your knowledge and understanding which may be difficult to remedy.
- If you have to be away, catch up quickly, and remember it is *your responsibility* for catching up on missed work

GENERAL

- *Come prepared.*
- Arrive early, open your notes or handouts to the material covered in the previous class, or to the previous day's assignment. Do a quick scan or review, and make note of any points you wish to ask the instructor about.
- Ask *questions*. Ask the instructor (nicely) to write larger, more neatly talk louder or slower, etc.
- *Listen* carefully and discipline yourself to maintain attention.
- Be an *active learner*, not an "empty vessel waiting to be filled up".
- *Participate in class.*
- Make *good notes*.

- Hand in *all assignments* on time (not handing in assignments is a leading cause of failure).

OUT OF CLASS

STUDYING & DOING ASSIGNMENTS (your main job as a student)

- Adopt the idea that *learning = understanding + application*
- Allow *1-2 hours of out-of-class time* per hour of class-time for each subject:
i.e. a minimum 40-60 hour work week total.
- Know your *course outline*, and use it.
- Study with other students-become part of a study group

Daily Study

- *PRE-view*: daily preview of material to be covered next class, using course outline and notes: scan for main ideas, look at diagrams and captions. Do any reading or written assignments given by instructor.
- *RE-view*: review notes after every class to check for understanding, omissions, organization, spelling, etc.. Use your handouts, classmates, instructor to clarify material.

Study for Quizzes, Tests, Exams

- Put in the *hours*—have a study schedule, plan your time.
- Learn *effective study skills*: summary notes, review sheets, flash cards, recitation, repetition, etc

GET HELP FROM YOUR INSTRUCTOR

Your instructor will be glad to help you with understanding course material, improving study & note skills, doing lab reports, tea, sympathy and much more.