

SIMON FRASER UNIVERSITY

EDUCATION 476-4

DESIGNS FOR LEARNING: NATURAL SCIENCE

(Secondary)

(E1.00)

(Cat. #80229)

Regular Summer Semester, 1993
(May 3 – July 30)
Wednesday, 5:30–9:20 p.m.
Location: MPX 7500F

Instructor: Dr. Wolff-Michael Roth
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PREREQUISITE: EDUC 401/402.

RATIONALE:

This course is intended to provide a conceptual framework for making sense of the events of curriculum and instruction in secondary school science; it provides an introduction to thinking about learning and teaching and the practical skills required to do the job.

OUTLINE OF POTENTIAL TOPICS: (this outline is not exhaustive and may include some topics which will not be covered).

- What is the nature scientific knowledge? What is science? How is scientific knowledge constructed?
- Philosophy and sociology of science.
- What is the scientific method? Does it exist? What does this mean for teaching?
- Constructivism.
- Students' views about scientific concepts.
- Analysing and improving science teaching.
- Tapping the research on science teaching.
- The integration of science, mathematics, and technology (computers and others).
- Planning your science lesson.
- Assessing science learning.
- What is the current interest in cooperative learning all about?

REQUIRED TEXTBOOK:

Hassard, Jack. (1992). Minds on science: Middle and secondary school methods. Harper & Collins. ISBN #0-0650-0019-6

READINGS:

Among the recommended books on reserve in the library are the following:

Driver, R., Guesne, E., & Tiberghien, A. (1985). Children's ideas in science. Open University Press.

Osborne, R.J., & Freyberg, F. (1985). Learning in science: The implications of children's science. Auckland, NZ: Heinemann.

Further readings will be made available as photocopies on reserve in CET and will be assigned throughout the course.

REQUIREMENTS:

The students are to complete (a) an interview project through which they will find out more about a child's/student's ideas about science and (b) a plan for two science lessons designed to teach the concepts involved in the interview.