

**SIMON FRASER UNIVERSITY**  
**EDUCATION 476-4**  
**DESIGNS FOR LEARNING: NATURAL SCIENCES**

Spring Semester, 1991  
(January 7 - April 5)  
Wednesdays, 4:30 - 8:20 p.m.  
Location: MPX 7500

Instructor: Dr. M. McClaren

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**PREREQUISITES:** Education 401/402 or equivalent

**COURSE DESCRIPTION:**

Designs for Learning: Natural Sciences is intended to provide a mixture of theory and practical experience for teachers interested in extending student's knowledge of the natural world and in increasing their understanding of science and applied science. The contemporary world has been shared by science and technology. Great new opportunities have been created and the lives of millions have been improved. At the same time, grave dangers confront the human species as a consequence of pollution, resource depletion, habitat destruction, and the threat of nuclear conflict. If humans are to make wise use of science and technology they will need to be informed, interested in, and aware of them. This course will focus on how teachers can foster these attributes in themselves and their students.

**TOPIC OUTLINE**

A. Main Themes

1. What is Science? How does science differ from other fields or human activity. What is an "experiment"? What do we do when we perform one?
2. What is technology and applied science. How do ideas find their way from science → everyday life.
3. The ethical dimensions of science and technology, is science a moral or amoral discipline? How do we choose from among alternatives in scientific research or in applying science?
4. Connecting science and technology to the lives of students.

B. Activities, Investigations, and Questions to be Explored

1. Teaching science on a shoestring budget.
2. Developing general thinking skills through science.
3. Using science as an "Integrator" to other curriculum areas - reading, math, art, socials.
4. Using community resources in science and technology.
5. Field experiences – their place in a science program.
6. Engaging students' interests in science and technology.
7. Media and print resources in science teaching.

In each evening session there will typically be a mixture of hands-on activity, small group discussions and lecture/seminar presentations. There will likely be at least one weekend field trip or evening field trip, for which some extra cost may be entailed. These will be arranged at the course start. The course evaluation is typically based on the performance of several tasks, ranging from "production-demonstration" tasks to written submissions. An outline of these will be given to students on the first evening.