

SIMON FRASER UNIVERSITY

Intersession 1999

EDUC 476 - 4
Designs for Learning: Natural Sciences
(K-12)

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Mondays & Wednesdays: 17:30- 21:20

E02.00

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PREREQUISITE

Educ 401/402

COURSE DESCRIPTION

The course involves an "inquiry" approach to the consideration of the following science teaching related questions and topics:

- "What science is" and why it should or should not be taught in contemporary elementary and secondary schools?
- "The relationship between how we understand "science" and what we see as "scientific processes." How does "scientific inquiry" compare with other forms of inquiry?
- What is the nature of scientific knowledge? Are there different kinds of knowledge? How does our understanding of knowledge relate to teaching and learning?
- What is "ethno-science" and how do alternative approaches to scientific activity relate to the classroom?
- What does it mean to be "a scientist?" Can students be scientists? Are conventional educational "science activities" scientific?
- What is the mandated science program for BC elementary and secondary teachers? How does it compare with other jurisdictions? How do we decide what science teaching includes?
- How do we interpret, assess, and evaluate scientific learning? What alternatives are there?
- What is the relationship between science and technology? What are the implications of this relationship for science teaching?

OBJECTIVES

Setting realistic and defensible objectives.

Arguing for the defensibility of your own science program.

Constructing your own teaching/learning, assessment, and evaluation materials.

Analyzing and critiquing alternative approaches to science teaching and learning.

Considering and critiquing research on science learning and teaching.

Designing and critiquing curriculum materials intended for use in science classrooms.

The course is intended to provide an opportunity for students to examine alternatives and make defensible decisions about the theory(s) and practice(s) associated with science teaching and learning within the K-12 school system.

REQUIREMENTS

1. MIDTERM - 45%

The construction of a unit plan, theme study, or other encompassing 5-6 lessons. This work is to be accompanied by a short paper that outlines the rationale for the general approach taken, the linking of subject matter with teaching activity, and the choice of assessment/evaluation strategy.

2. FINAL - 45%

A written analysis of a science lesson taught by you to a group of elementary or secondary science students. The lesson you report on should be part of your unit plan or theme study from the mid-term.

3. PARTICIPATION - 10%

This involves our assessment of your participation in the class. Criteria for this assessment will be negotiated with the class.

READINGS

Xeroxed articles available in class.