

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

Spring Semester, 1992
(January 6 - April 3)
Location: Terrace

Instructor: Allen Wooton

PREREQUISITE: Educ 401/402

COURSE OBJECTIVES

This course is intended to help you to develop a science programme that is suitable to you and your students, and that takes into account the objectives of the B.C. elementary and junior secondary science curriculum. The topics of the course are:

I. The Nature of Science

1. What is science?
2. Is there a scientific method?
3. How do scientists agree on a scientific theory? How does a new theory replace an older one? Does science evolve to a "right" answer?
4. Is there a difference between science and technology?
5. Are there different types of science? Is there a hierarchy of science?

II. Classroom Science

6. Is "science" a verb?
7. What is an experiment?
8. How can you make classroom science relevant to everyday life?
9. What are realistic objectives for your science programme?
10. Short and long range goals for your science programme.

III. Practical Matters for your Science Programme

11. How do you get science equipment?
12. Storage and organization of science equipment.
13. Safety in the science classroom.
14. Science text books.
15. Resources for teaching science.

IV. Evaluation

16. How do you know if students understand a concept?
17. How can you improve your own science programme?

For this course you will be evaluated in the following manner:

Assignment #1 (40%)

Develop a 6–10 period science unit that is suitable for your class. This science unit should include:

- (a) The objectives you intend to attain in your unit.
- (b) An explanation of how this unit fits into your science goals for your class and how it meets the requirements of the B.C. curriculum.
- (c) An explanation of how this unit will be helpful to your students.
- (d) An outline of your expectations for each science class period of the unit.
- (e) A description of how you will measure your degree of success in achieving the objectives you had for your unit.

Assignment #2 (10%)

Present an experiment to the Education 476 class as if this were your own class at your school. Prepare enough materials and equipment so that all the members of the class can try it out. This experiment can be one that you plan to use in the unit you develop for assignment #1.

Assignment #3 (40%)

Implement your science unit in your own classroom and

- (a) Keep a journal in which you outline the day to day progress of your unit.
- (b) Evaluate the success of your unit in achieving the objectives you set for student learning in assignment #1, section (a).
- (c) Outline the good and not so good features of your unit. Will you use the unit again? How would you modify the unit to make it better or to extend it?
- (d) What did you learn from implementing this unit?

The remaining 10% of your mark will be based on a discussion with me at the end of the course. At that time I will want to know answers to questions like these:

How did the course help you understand science better?

How did your science methods change?

Have you contributed to the course by sharing your own ideas and expertise?

How would you rate your performance in the course?

READINGS

During the course there will be a number of photocopied handouts on specific topics. The draft elementary curriculum guide and the junior secondary science curriculum guide will be used for reference.

REQUIRED TEXT

Wassermann, Selma, & Ivany George. (1988). *Who's Afraid of Spiders?* New York: Harper & Row.