

SIMON FRASER UNIVERSITY
Education 476-4
DESIGNS FOR LEARNING: NATURAL SCIENCES
(ELEMENTARY)

Spring Semester, 1995
Location: Garden City Elementary
8311 Garden City Road
Richmond, B.C.
Time: Wednesdays, 16:30 - 20:20

Instructor: Wendy Lim

PREREQUISITE: EDUC 401/2

OBJECTIVES:

- to provide a conceptual framework for making sense of curriculum and instruction in Elementary School Science
- to provide an introduction to thinking about science teaching, development of practical skills, and fostering of positive attitude to teach science
- to become aware of the theories of science teaching and to understand their implications in practice
- to focus on hands-on, minds-on learning about science, sciencing, and science teaching by:
 - developing curriculum plans and science kits;
 - microteaching;
 - readings;
 - discussing in small and whole groups to make meaning of learning experiences;
 - participating in hands-on, minds-on class investigations;
 - completing all course assignments;
 - ongoing personal reflection;
 - committing to a personal action plan to implement a hands-on, minds-on science program
- to create an opportunity for collaborative planning and sharing
- to employ a variety of teaching strategies to facilitate meaning making of big ideas in the major areas of science: biological, physical, earth/space, technology
- to reflect the course's format/structure, content and teaching methodologies as a possible design for "putting theory into practice"

OUTLINE OF TOPICS FOR DISCUSSION AND ASSIGNMENTS

- What is science, and why should it be taught anyway?
- Using philosophy of science to develop a sound conception of the scientific process.
- What is the "scientific method"?
- Are scientists "open-minded" and objective?
- What makes an experiment an experiment?
- What is the current status of elementary science in B.C.? What programs and materials are available?
- How can we interpret what students say and do in the science classroom?

- How do young children think about particular scientific concepts? What is the nature of learning?
- Setting realistic and defensible objectives. Designing, implementing, and modifying your own science program.
- Role of parents and community in science and technology.
- Arguing for the defensibility of your own science program. Knowing who you are and articulating your beliefs about what you value in science education.
- Constructing your own science curriculum materials.
- Analysing and improving your own science teaching.
- Familiarizing yourself with the research on science learning.
- Making decisions about resourcing science experiences.

EXPECTATIONS

- punctuality and daily attendance (inform Wendy if you are unable to attend; call 433-5617 and leave a message with your name, telephone number and reason for absence)
- completion of all assignments, submitted on scheduled due date at the beginning of class
- active and constructive participation in all course activities and assignments

COURSE ASSIGNMENTS AND EVALUATION

Your final course mark will be based on three course assignments and your participation. Please note due dates and be aware that late assignments will be penalized (one letter grade per class period; unacceptable after 2 class periods).

REQUIRED TEXT

Wassermann, S., & Ivany, G. (1988). *Teaching Elementary Science: Who's Afraid of Spiders?* (Recommended)

Beichner, Robert & Dobey, Daniel (1944). *Essentials of Classroom Teaching: Elementary Science*. Boston: Allyn and Bacon.