

Designs for Learning: Secondary Science

Education 416

Section: D100

Term: 2010 Summer

Instructor: Dr. Roland M. Schultz

Phone: 778-829-5471

Office: EDB 9508

Email: rmschulz@sfu.ca

Room: EDB 7500 Time: Thursday, 1:30-5:20 pm

Discussion Topics: This course is designed for prospective and practicing secondary school teachers

to explore the fundamentals of learning and teaching science. The aim of the course is for students to develop a critical and practical philosophy of science education. The course will draw on the literature of science education and philosophy of science in order to show how these findings have relevance for the classroom. Students will become familiar and confident with a variety of learning theories, instructional and assessment strategies, including implementing effective group work, and demonstrations. As well, students will be expected to engage in reading, writing, dialogue, presentations and research on a selection of topics which are deemed of fundamental importance to learning secondary science today. Finally, students will continue to develop as reflective practitioners and engage in becoming lifelong learners as well as innovators in science education to promote thinking and inquiry in their classroom.

Course Objectives

Students should become more comfortable teaching secondary science

Students should be able to critically examine the prescribed curriculum and confidently implement it in the science classroom.

Students should be able to plan learning and teaching experiences within consistent theoretical frameworks that support growth in science understanding. Topics

Range of possible topics to be covered include: current problems of science education; the nature of science; science literacy; theories of learning; students misconceptions; multiple intelligences; imagination; assessment; First Nations Indigenous knowledge; curriculum (also assessing the BC curriculum for junior and senior sciences); learning in the lab

(Students will have the opportunity to explore additional topics, such as gender, multicultural, and First Nations issues (as individually chosen)

Grading: Assessments

1. Class attendance & participation/ readings: 25%
(Attendance is mandatory for passing the course)

2. Science Connections: 15%

3. Curriculum Planning Unit: 30%

4. Class Presentation/ Lesson: 30%

Required Texts: Bauer, H.H. (1992). Scientific literacy and the myth of the scientific method.

Designs for Learning: Secondary Science

University of Illinois Press. Urbana and Chicago.

416 Custom Courseware Readings; compiled by R. Schulz (Education, SFU).

Science 8-10; Physics 11/12; Chemistry 11/12; Biology 11/12; Integrated Resource Package (IRP). (1996). Ministry of Education, B.C
\x09(available on-line: www.bced.gov.bc.ca)

(ADDITIONAL READINGS may be made available in class as topics arise)

Recommended Texts:

Materials/Supplies:

Prerequisite/Corequisite:

Notes: Students in all Faculty of Education courses are encouraged to review policies pertaining to academic integrity available on the Undergraduate Programs website: http://www.educ.sfu.ca/ugradprogs/student_resources/index.html

This outline is derived from a course outline repository database that was maintained by SFU Student Services and the University's IT Services Department. The database was retired in 2014 and the data migrated to SFU Archives in 2015.