Designs for Learning: Secondary Science

Education 416

Section: D100

Term: 2013 Summer

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Wednesday 1:30-5:20 pm Surrey Campus Room 3200

RESERVED FOR SECONDARY PILOT STUDENTS

Discussion Topics: This introductory course will provide an initial orientation to science teaching at the secondary level. Potential topics include, but are not limited to, the role of prior knowledge in learning science, scientific literacy, findings from science education research, the science curriculum, conceptual change in the science classroom, laboratory experiences, and the role of digital technologies in science education. Throughout the course, students will have an opportunity to analyze critically their prior experiences in science education with a view to thinking ahead to their future formal and informal learning and teaching goals.

Course Outcomes

This course will be a venue for students to explore their understanding of the nature of science as well as the challenges and possibilities associated with science teaching in the secondary school. We will begin with questions focusing on students prior experiences

learning science, because prior assumptions tend to play a big role in how people learn science and in how people learn to teach science. Throughout the course, students will have opportunities to consider the theoretical basis of engaging teaching practices and the practical implications of research on the teaching of science. The use of laboratories in a senior science classroom will be analyzed critically through hands-on experiences. Unit planning will be practiced in the context of thinking about the ways in which lessons, assessments, and curriculum design might fit together to provide a rich learning opportunity for secondary school students. Finally, students will have an opportunity to pursue an area of interest related to science education in depth via a self-directed learning (SDL) assignment; these investigations will form the basis of a personal portfolio and a class presentation.

Grading: Requirements

Content Representation (CoRe) Assignment: \x09\x0915%

Content Representation (CoRe) Lab Assignment:\x0915%

Self-Directed Learning Assignment (WikiPage): \x0930%

Interdisciplinary Instructional Unit (STSE Theme): \x0940%

Required Texts: Textbook and Readings

Loughran, J. (2010). What expert teachers do. London: Routledge. (Required)

Knight, R. D. (2004). Five easy lessons: Strategies for successful physics teaching. San Francisco: Addison Wesley. (Recommended)

Additional readings will be distributed via email and made available online throughout the course.

Recommended Texts:

Materials/Supplies:

Prerequisite/Corequisite: EDUC 401/402.

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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