

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: EDUC 457		Number of Credits: 1.5 Course credit policy (105)													
Course Full Title: Investigations into Secondary Science Course Short Title: Secondary Science															
Faculty: Faculty of Education, Community, & Human Dev.		Department (or program if no department): Teacher Education													
Calendar Description: <p>This course provides pedagogical concepts and skills necessary for effective teaching of secondary science courses (emphases on grades 11 and 12). Problem-oriented science, science instructional models, environmental science, and integrating Indigenous science are emphasized.</p> <p>Note: Students with credit for EDUC 437A cannot take this course for further credit.</p>															
Prerequisites (or NONE):		Admission to the Bachelor of Education and EDUC 436.													
Corequisites (if applicable, or NONE):															
Pre/corequisites (if applicable, or NONE):															
Antirequisite Courses (<i>Cannot be taken for additional credit.</i>) Former course code/number: EDUC 437A Cross-listed with: Equivalent course(s): <i>(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)</i>		Course Details Special Topics course: No <i>(If yes, the course will be offered under different letter designations representing different topics.)</i> Directed Study course: No <i>(See policy 207 for more information.)</i> Grading System: Credit/No Credit Delivery Mode: May be offered in multiple delivery modes Expected frequency: Annually Maximum enrolment (for information only): 32													
Typical Structure of Instructional Hours <table border="1"> <tr> <td>Lecture/seminar</td> <td>10</td> </tr> <tr> <td>Tutorials/workshops</td> <td>10</td> </tr> <tr> <td>Supervised laboratory hours (science lab)</td> <td>3</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td>Total hours</td> <td>23</td> </tr> </table>		Lecture/seminar	10	Tutorials/workshops	10	Supervised laboratory hours (science lab)	3					Total hours	23	Prior Learning Assessment and Recognition (PLAR) PLAR cannot be awarded for this course because: Connected to practicum	
Lecture/seminar	10														
Tutorials/workshops	10														
Supervised laboratory hours (science lab)	3														
Total hours	23														
Scheduled Laboratory Hours Labs to be scheduled independent of lecture hours: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		Transfer Credit (See bctransferguide.ca) Transfer credit already exists: Yes Submit outline for (re)articulation: No <i>(If yes, fill in transfer credit form.)</i>													
Department approval		Date of meeting: December 8, 2021													
Faculty Council approval		Date of meeting: December 2, 2022													
Undergraduate Education Committee (UEC) approval		Date of meeting: February 24, 2023													

Learning Outcomes *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

Upon successful completion of this course, students will be able to:

1. Critically analyze content, resources, and strategies found in the B.C. secondary science curriculum that focus on students in grades 11- 12.
2. Apply constructivist learning theory for designing learning activities in secondary science, with emphasis on the senior secondary grades in biology and Earth and space science (grades 11- 12).
3. Explain connections between the Nature of Science (NoS), science content, and science teaching using theories such as Pedagogical Content Knowledge.
4. Develop activities in the secondary science curriculum consistent with big ideas, content, and curricular competencies.
5. Teach science activities in biology, Earth science, and environmental science in a community setting.
6. Create a short sequence of lessons in science using inquiry, science instructional models, and direct instruction.
7. Demonstrate safe practices in classroom, laboratory, and field settings. Justify use of safe practices in classroom, laboratory, and field settings.
8. Integrate the use of information technology in science lessons.
9. Design assessment tools in relation to science curricula for diverse learners.
10. Accurately reference content and major concepts necessary for teaching science courses in a B.C. secondary school.
11. Integrate the use of Indigenous pedagogies, content, and resources into the teaching of science.

Recommended Evaluation Methods and Weighting *(Evaluation should align to learning outcomes.)*

Assignments:	100%	%	%
	%	%	%

Details:

Assignments: lesson plans (30%), in class teaching (30%), inquiry (20%), reflection (20%)

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Texts and Resource Materials *(Include online resources and Indigenous knowledge sources. [Open Educational Resources](#) (OER) should be included whenever possible. If more space is required, use the [Supplemental Texts and Resource Materials form](#).)*

Type	Author or description	Title and publication/access details	Year
1. Online resource	Ministry of Education	BC Science Curriculum	2021
2. Textbook	E. Pedretti and K. Bellomo	Explorations in Secondary School Science: Practice and Theory. Pearson.	2014
3.			
4.			
5.			

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)*

Science curriculum kits

Course Content and Topics

- How constructivist learning theory influences classroom practice
- The nature of science and learning in science
- Pupil's conceptions in science and implications for citizenship
- Inquiry teaching, models, and strategies for science learning
- Direct instruction, science instructional models, inquiry learning, and strategies for science learning
- Information technology to promote science learning
- Basics of safety in the classroom, laboratory, and field
- The local community as a location for science and stewardship activities
- Lesson planning and unit planning
- Using a range of on-going assessment strategies for science activities
- Equity, diversity and inclusion issues in science teaching
- B.C. secondary science curriculum
- Application of science into other subject areas, including social studies, mathematics, health, consumerism, community planning, etc.
- Resources available for science teaching (e.g., Project Wild, Streamkeepers, etc.)
- Indigenous resources, pedagogies, and content related to science teaching