

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

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

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|---|-----------|--|----|---------------------|----|---|--|--|--|--|--|--------------------|-----------|--|--|
| Course Code and Number: EDUC 423 | | Number of Credits: 2 Course credit policy (105) | | | | | | | | | | | | | |
| Course Full Title: Designs for Learning Elementary Science Course Short Title: Elementary Science | | | | | | | | | | | | | | | |
| Faculty: Faculty of Education, Community, and Human Development | | Department: Teacher Education | | | | | | | | | | | | | |
| Calendar Description: Introduces goals of science education and pedagogical concepts and skills for effective teaching of elementary science using the B.C. Ministry of Education curriculum. Approaches include inquiry, conceptual change, and science instructional models. Students explore Indigenous science and resources. | | | | | | | | | | | | | | | |
| Prerequisites (or NONE): | | Admission to the Bachelor of Education. | | | | | | | | | | | | | |
| 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: 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>20</td> </tr> <tr> <td>Supervised laboratory hours (science lab)</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td>Total hours</td> <td>30</td> </tr> </table> | | Lecture/seminar | 10 | Tutorials/workshops | 20 | Supervised laboratory hours (science lab) | | | | | | Total hours | 30 | Prior Learning Assessment and Recognition (PLAR) PLAR cannot be awarded for this course because: Connected to practicum | |
| Lecture/seminar | 10 | | | | | | | | | | | | | | |
| Tutorials/workshops | 20 | | | | | | | | | | | | | | |
| Supervised laboratory hours (science lab) | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Total hours | 30 | | | | | | | | | | | | | | |
| Scheduled Laboratory Hours Labs to be scheduled independent of lecture hours: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes | | Transfer Credit <i>(See bctransferguide.ca.)</i> 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: May 6, 2022 | | | | | | | | | | | | | |
| Undergraduate Education Committee (UEC) approval | | Date of meeting: June 17, 2022 | | | | | | | | | | | | | |

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

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

- Describe the organization and design of the B.C. elementary science curriculum.
- Examine the implications of constructivist learning theory for designing learning activities in elementary science.
- Critically analyze the goals of science education and the nature of science in relation to teaching and learning elementary science.
- Design science activities in the four strands (biology, physics, earth and space, and environmental science) that use the elementary science curriculum principles.
- Teach science activities in the four strands (biology, physics, earth and space, and environmental science) in a community setting.
- Plan a short sequence of lessons in science using inquiry, critical challenges, and conceptual change models.
- Describe basics of safe practices in classroom, laboratory, and field settings.
- Integrate the use of information technology in science lessons.
- Integrate a variety of science instructional models with principles of learning and elementary curricula.
- Develop strategies for assessing understanding of content and curricular competencies for diverse learning abilities.
- Incorporate Indigenous science into lesson plans and activities.

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

| | | | |
|--------------|------|---|---|
| Assignments: | 100% | % | % |
| | % | % | % |

Details:

Assignments: 40% connected lessons, 20% science teaching philosophy, 20% teaching demonstration

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 | Martin | Elementary Science Methods: A Constructivist Approach | 2011 |
| 3. Textbook | Bloom | Creating a classroom community of young scientists: A desktop companion. | 2006 |
| 4. Textbook | Bass, Contant, & Carin | Teaching Science as Inquiry (11 th ed) | 2008 |
| 5. Textbook | Pedretti & Bellomo | Explorations in Elementary Science: Practice and Theory | 2014 |

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

Science learning resources and kits from UFV curriculum library

Course Content and Topics (example only)

- How constructivist learning theory influences classroom practice
- The nature of science and learning in science
- Pupil's conceptions in science and implications for citizenship
- Direct instruction, inquiry teaching, critical challenges, discovery learning and conceptual change instructional models and strategies for science learning
- Information technology to promote science learning
- STEM (Science Technology, Engineering and Mathematics) education and applications in teaching Elementary science
- 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
- Diversity and inclusion issues in science teaching
- BC Elementary Science curriculum and Science Safety Resource Manual (2003)
- Integration of science into other subject areas, including language arts, social studies, and mathematics
- Resources available for science teaching (e.g., Project Wild, Streamkeepers, etc.)
- Place based and Indigenous science instruction