

EDUC 5223

Curriculum & Pedagogy in Intermediate/Senior Science - General

Instructor:

Maureen O'Neill

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Office Hours: by appointment

Schedule:

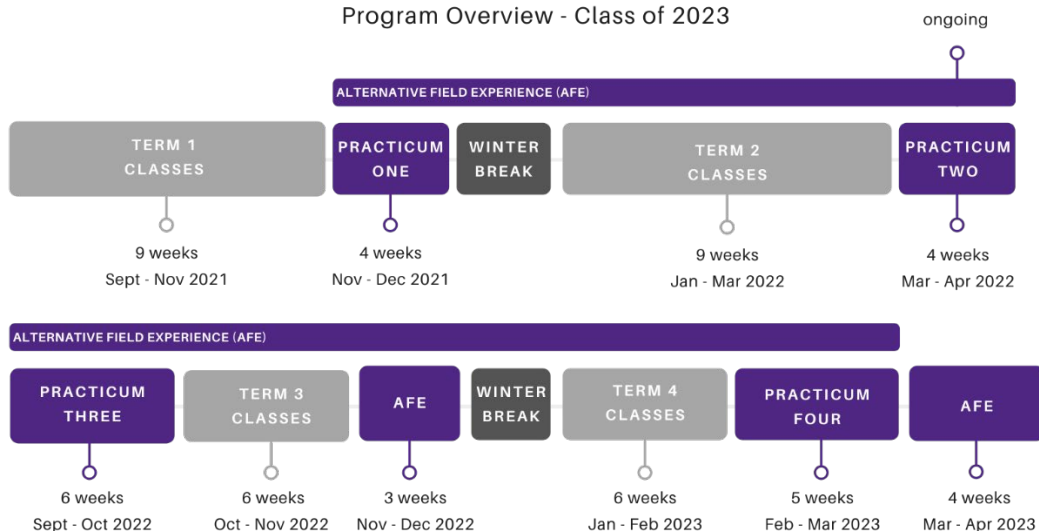
Section 001: Mon/Wed 4:30PM-6:30PM,
Room: 2054

Program Context:

This is a **J/IS Curriculum Course** taken by Teacher Candidates during **Year 1, Full Year** of the Bachelor of Education.

BACHELOR OF EDUCATION

Program Overview - Class of 2023



Intermediate/Senior General Science (EDUC 5223)

An introduction to curriculum and pedagogy in science with particular focus on pedagogical practice and Ontario secondary school science curricula. Theoretical perspectives including the nature of science, cognitive, behavioural, and social theories of science learning, and adolescent development are examined. Significant attention is paid to environmental and sustainability education. Four hours per week, full year, 1.0 credit

This course is provided for Intermediate/Senior teacher candidates in General Science. The course explores a number of topics, materials and teaching strategies which will extend candidates' knowledge and skills for the teaching of science. Three major areas of focus are addressed:

1. Theoretical perspectives in science teaching.
2. Constructivist, cognitive, behavioural and social theories of science learning.
3. An introduction to curriculum and pedagogy in science which includes examination of the Ontario secondary science curricula.

There is no required textbook for this course. All outside class readings will be based on need for further reflection, understanding and to foster follow-up discussion. These readings will be posted in advance of class.

Number of Credits : 1

Number of Weeks: 18

Week 1: Sept 8/21 - Introductions

- Introductions to one another, the course and teaching science

Learning Activities

Type	Name	Description
Reading	Week 1 Reading	Constructivism Article (Colburn)
Practice	Week 1 Task	Getting to know you survey

Week 2: Sept 13, 15/21 - Constructivist Learning Theory

- Student learning in Science.
- How do mis/preconceptions influence learning?

Learning Activities

Type	Name	Description
Assignment	Week 2 Journal Entry	Due Wednesday September 15th
Reading	Week 2 Reading	Osborne and Freyberg and Hodson Chapters –one different chapter, provided in class, per person in the group.
Practice	Week 2 Task	Video and reflection. Bring 1 or 2 common misconceptions related to science concepts to class on Wed. September 15th.

Week 3: Sept 20, 22/21 - The Science Curriculum

- Standards of practice,
- Introduction to the Ministry guidelines,
- Course profiles,
- Exemplars,
- Unit outlines and Lesson plans

Learning Activities

Type	Name	Description
Assignment	Week 3 Journal Entry	Due Wednesday September 22nd.
Presentation	Week 3 Microteaching Presentation	Group A (Wednesday) Group B,C complete peer evaluations.
Practice	Week 3 Task	Ministry Guideline scavenger hunt and Backward Design of the Curriculum Workshop

Week 4: Sept 27, 29/21 - The Science Curriculum continued

- Standards of practice,
- Introduction to the Ministry guidelines,
- Course profiles,
- Exemplars,
- Unit outlines and Lesson plans

Learning Activities

Type	Name	Description
Assignment	Week 4 Journal Entry	
Presentation	Week 4 Microteaching Presentations	Group B (Monday) Group C (Wednesday) Peer evaluations
Practice	Week 4 Task	Microteaching presentations

Week 5: Oct 4, 6/21 - The Lesson Plan

- The components of an effective lesson plan for the science classroom and laboratory session.

Learning Activities

Type	Name	Description
Assignment	Week 5 Journal Entry	Due Wednesday, October 6th.
Practice	Week 5 Task	Laboratory activity carousel and field trip.

Week 6: Oct 18, 20/21 - Curriculum Expectations: STSE and Inquiry

- Examining STSE expectations and their incorporation into each unit.
- Developing the skills, strategies and habits of mind required for scientific investigation.
- Exploring IBL, CBL, PBL and GBL

Learning Activities

Type	Name	Description
Assignment	Week 6 Journal Entry	Due Wednesday, October 20th
Practice	Week 6 Task	Teaching strategy carousel and Jigsaw activity

Week 7: Oct 25, 27/21 - Technology

- Exploring the types of technology available to the science teacher.
- How do we incorporate technology into our lessons in order to maximize learning opportunities?

Learning Activities

Type	Name	Description
Assignment	Week 7 Journal Entry	Due Wednesday, October 27th
Practice	Week 7 Task	Guest Speaker feedback forms

Week 8: Nov 1, 3/21 - Assessment and Evaluation

- The primary purpose of assessment and evaluation.
- How do assessment and evaluation relate to the curriculum and how are they tracked, recorded and reported.

Learning Activities		
Type	Name	Description
Assignment	Week 8 Journal Entry	Due Wednesday, November 3rd.
		Assessment and Evaluation Diagnostic quiz and debrief.
Practice	Week 8 Task	Analysis of Mark recording programs and a report card.

Week 9: Nov 8, 10/21 - Differentiated Instruction and Global Competencies

- Defining Differentiated Instruction (DI)
- Why is DI important?
- Implementing DI in the science classroom

Learning Activities		
Type	Name	Description
Assignment	Week 9 Journal entry.	Due Wednesday, November 10th.
Practice	Week 9 Task	DI and competencies workshop.

Week 10: Jan 3, 5/22 - Reflections on Practicum & Numeracy/Literacy

- Debrief Practicum
- Numeracy in the Science Classroom
- The role of Literacy in the Science Classroom

Learning Activities

Type	Name	Description
Practice	Week 10 Task	Practicum feedback form/self -assessment. Numeracy and Literacy workshop.

Week 11: Jan 10, 12/22 - Issues in Science Teaching

- Topics Include:
- Indigenous ways of knowing,
- Animal rights and dissection,
- Gender and Equity in the science classroom

Learning Activities

Type	Name	Description
Reading	Week 11 Reading	Article reading (each person reads one chapter from textbook by Wallace and Loudon.
Practice	Week 11 Task	Small and large group discussions with peer feedback. Questions for grade 7 and 8 science teachers

Week 12: Jan 17, 19/22 - Grade 7 & 8 Science Teaching

- Guest Speakers

Learning Activities

Type	Name	Description
Practice	Week 12 Task	Guest speaker feedback form

Week 13: Jan 24, 26/22 - Unit Presentations

- Grade 7 and 8 unit plan presentations

Learning Activities

Type	Name	Description
Practice	Week 13-15 Task	Participation and Feedback during presentations

Week 14: Jan 31, Feb 1/22 - Unit Presentations

- Grade 9 unit plan presentations

Learning Activities

Type	Name	Description
Practice	Week 13-15 Task	Participation and Feedback during presentations

Week 15: Feb 7, 9/22 - Unit Presentations

- Grade 10 unit plan presentations

Learning Activities

Type	Name	Description
Practice	Week 13-15 Task	Participation and Feedback during presentations

Week 16: Feb 14, 16/22 - Issues in Science Teaching

- Topics Include:
- Questioning,
- Plagiarism and
- At-risk students

Learning Activities		
Type	Name	Description
Practice	Week 16 Task	Article reading and small and large group discussions with peer feedback.

Week 17: Feb 28, Mar 2/22 - Classroom Management and Safety

- Investigating the tenets of effective classroom management and laboratory safety.
- Developing a personal classroom management plan.

Learning Activities		
Type	Name	Description
		Classroom management scenario activity.
Practice	Week 17 Task	Online safety formative quiz. Student safety tasks.

Week 18: Mar 7, 9/22 - Professionalism

- Mock interviews
- AQ courses
- Leadership and NTIP
- Surviving the firsts (days, weeks, months and year)

Learning Activities

Type	Name	Description
Practice	Week 18 Task	Mock interview in small groups

Assessment Activities

Type	Name	Description
Assignment	Due Wk 04: Unit Overview	5 units Due Wednesday, September 29th.
Assignment	Due Wk 05: Microteaching Reflection	10 units Due Wednesday, October 6th.
Assignment	Due Wk 06: Unit Introduction and Lesson Plan	25 units Due Wednesday, October 20th.
Assignment	Due Wk 07: STSE Science Activity	15 units Due Wednesday, October 27th.
Assignment	Due Wk 09: Claims- Evidence- Reasoning (CER) Activity	5 units Due Wednesday, November 10th.
Assignment	Due Wk 12: Journal Essay	20 units Due Wednesday January 19th.
Assignment	Due Wk 13- 15: Group Presentations	20 units
Assignment	Note to students regarding all assignments	Detailed descriptions outlining Learning goals and Success criteria for all assignments will be provided when each task is discussed in detail during class. Each assignment has been assigned a unit score (totaling 100 units) which is provided to help the student determine the approximate amount of time and level of detail expected for successful completion of the task.

How to Protect Your Professional Integrity:

The Bachelor of Education is an intense and demanding program of professional preparation. Teacher Candidates are expected to demonstrate high levels of academic commitment and professional integrity that align with both Western University's Academic Rights and Responsibilities and the Professional Standards and Ethical Standards set by the Ontario College of Teachers. These expectations govern your time in class, in your Practicum, in your Alternative Field Experiences, and include the appropriate use of technology and social media.

The Teacher Education Office will only recommend teacher candidates for Ontario College of Teachers certification when candidates have demonstrated the knowledge of, and adherence to, the faculty policies throughout the two-year program.

To review the policies and practices that govern the Teacher Education program, including attendance, plagiarism, progression requirements, safe campus and more, visit: edu.uwo.ca/CSW/my-program/BEd/policies.html

Faculty of Education Pass/Fail Policy:

All courses and assignments in the Bachelor of Education are assessed as Pass/Fail.

Instructors will make the Success Criteria of the assignments clear, and refinements of the criteria may take place in class as a means of co-constructing details of the assignments in the first two weeks of a course. This will allow for differentiation of process, product and timeline depending upon student needs.

Success Criteria will

- Articulate what needs to occur to demonstrate learning outcomes for a course/assignment;
- Inform the instructional process so that teaching can be adapted to ensure students continue to remain on track to meet the criteria as needed and appropriate.
- Align with the assignments created to provide opportunities for students to demonstrate the knowledge, skills and abilities they are working toward;
- Establish clear descriptive language that allows Teacher Candidates to identify, clarify and apply the criteria to their work and to their engagement in peer feedback;
- Focus the feedback on progress toward meeting the overall and specific tasks/assignment goals for the course.

Participation:

Participation is essential to success in the Teacher Education program. As a professional school, you need to treat coming to class as showing up for work in the profession. If you are not in class, you cannot participate. Actively participating in discussions, peer reviews/feedback, group work and activities is integral to the development of your own learning and to the learning within your classroom community.

Given the varied experiences of Teacher Candidates in the program, you may engage with ideas/concepts or skills that are familiar or unfamiliar to you.

A Professional Teacher Candidate is one who:

- Arrives in class (virtual or online) on time, and prepared. This includes completing any readings, viewing assignments or tasks in advance of class as requested.
- Listens to others and contributes thoughtfully to discussions;
- Models respectful dialogue and openness to learn, monitors, self-assesses and reformulates one's prior beliefs and understandings in light of new information;
- Monitors and addresses their wellness, practices self-care, and seeks appropriate support when necessary.

Support Services & Resources:



Health and Wellness
uwo.ca/health



Peer Support
westernusc.ca



Learning Skills
uwo.ca/sdc/learning



Indigenous Services
Indigenous.uwo.ca



Student Accessibility Services
sdc/uwo.ca/ssd



Writing Support
writing.uwo.ca



Financial Assistance
registrar.uwo.ca



Not sure who to ask?
Contact the Teacher Education Office at eduwo@uwo.ca