

EDUC 5223
 Intermediate/Senior General Science

Instructors:

Dr. Maureen O’Neill
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Dr. Isha Decoito (Course Coordinator)
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Schedule:

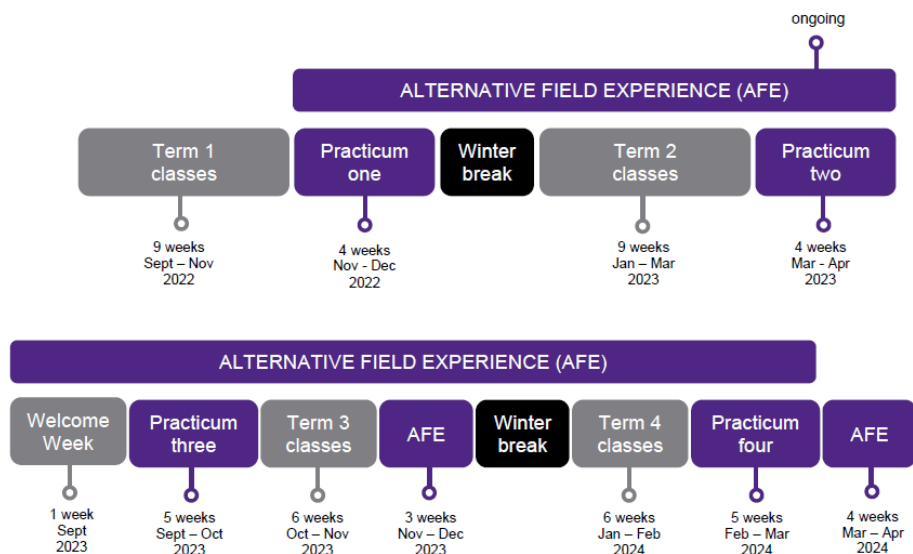
Section 1: Mondays & Wednesdays, 4:30-6:30pm (Room 2054)

Program Context:

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

Bachelor of Education

Program Overview – Class of 2024



Course Description

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.

Number of Credits: 1

Number of Weeks: 18

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.

Week 1: Introductions

Introductions to one another, the course, teaching and teaching science.

Learning Activities

Type	Name	Description
Reading	Constructivism article.	

Assessment Activities

Type	Name	Description
Formative Assessment	Getting to know you survey	

Week 2: Constructivist Learning Theory

Student learning in science.

How do mis/preconceptions influence learning?

Assessment Activities

Type	Name	Description
Formative Assessment	Video and reflection.	Bring 1 or 2 common misconceptions related to science concepts to class on Wed. September 14 th .
Assignment	Journal Entry	Assignment: Journal entry due Wednesday September 14, 2022

Week 3: The Science of Curriculum

Standards of practice

Introduction to the Ministry guidelines

Course profiles

Exemplars

Unit outlines

Lesson plans

Learning Activities

Type	Name	Description
Task	Ministry Guideline scavenger hunt and Backward Design of the Curriculum Workshop	

Assessment Activities

Type	Name	Description
	Microteaching presentation	
	Group A (Wednesday)	
Formative Assessment	Group B, C complete Peer evaluations	
	Journal entry due Wednesday September 21, 2022	

Week 4: The Science of Curriculum

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

Assessment Activities

Type	Name	Description
	Microteaching presentations:	
	Group B (Monday)	
	Group C (Wednesday)	
Formative Assessment	Peer Evaluations	
	Journal entry and Unit Overview (5 units) due Wednesday September 28, 2022	

Week 5: The Lesson Plan

The components of an effective lesson plan
Culturally Reflective and Responsive pedagogy for the science classroom
laboratory field trip

Learning Activities

Type	Name	Description
Task	Laboratory activity	carousel and field trip.

Assessment Activities

Type	Name	Description
Formative Assessment	Journal entry and Microteaching reflection (10 units) due Wednesday October 5, 2022	

Week 6: Curriculum Expectations: ST SE 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
Task	Teaching strategy carousel	and Jigsaw activity

Assessment Activities

Type	Name	Description
Formative Assessment	Journal entry and Unit Introduction and Lesson Plan (25 units) due Wednesday October 19, 2022	

Week 7: Technology

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

Learning Activities

Type	Name	Description
Task	<u>Guest Speaker</u> feedback forms	
Reading	Technology articles (Decoito)	

Assessment Activities

Type	Name	Description
Formative Assessment	Journal entry and STSE Science (15 units) due Wednesday October 26, 2022	

Week 8: 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
Task	Assessment and Evaluation Diagnostic quiz and debrief.	Analysis of Mark recording programs and a report card.

Assessment Activities

Type	Name	Description
Formative Assessment	Journal entry due Wednesday November 2, 2022	

Week 9: Differentiated Instruction and Global Competencies

Defining Differentiated Instruction (DI)

Why is DI important?

Implementing DI in the science classroom

Learning Activities

Type	Name	Description
Task	DI and competencies workshop.	

Assessment Activities

Type	Name	Description
Formative Assessment	Journal entry and CER activity (5 units) due Wednesday November 9, 2022	

Week 10: Reflections on Practicum and Numeracy/Literacy

Debrief Practicum

Numeracy in the Science Classroom

The role of Literacy in the Science Classroom

Learning Activities

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

Week 11: 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
Task		Article reading and small and large group discussions with peer feedback Questions for grade 7 and 8 science teachers

Week 12: Grade 7 and 8 Science Teaching

Guest speakers

Learning Activities

Type	Name	Description
Task		Guest speaker feedback form.

Assessment Activities

Type	Name	Description
Formative Assessment	Journal Essay (20 units)	

Week 13: Unit Presentations

Grade 7 and 8 unit plan presentations

Learning Activities

Type	Name	Description
Task		Participation and Feedback during presentations.

Assessment Activities

Type	Name	Description
Formative Assessment	Group presentations (20 units)	

Week 14: Unit Presentations

Grade 9 unit plan presentations

Learning Activities

Type	Name	Description
Task		Participation and Feedback during presentations.

Assessment Activities

Type	Name	Description
Formative Assessment	Group presentations (20 units)	

Week 15: Unit Presentations

Grade 10 unit plan presentations

Learning Activities

Type	Name	Description
Task		Participation and Feedback during presentations.

Assessment Activities

Type	Name	Description
Formative Assessment	Group presentations (20 units)	

Week 16: Issues in Science Teaching

Topics Include: Questioning, Plagiarism and At-risk students

Learning Activities

Type	Name	Description
Task		Article reading and small and large group discussions with peer feedback.

Week 17: 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
Task		classroom management scenario activity. Online safety formative quiz. Student safety tasks.

Week 18: Professionalism

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

Learning Activities

Type	Name	Description
Task		Mock interview in small groups

Course Readings

Copies of all readings referenced in the above syllabus will be distributed in class (hard copy) or posted to the course website in OWL.

Assessment Activities Summary

All written assignments will be submitted using the OWL platform.

Note: Journal Entries are brief reflections that will be completed during class on Wednesdays.

Assessment Activities

Date	Task
September 14, 2022	Journal Entry
September 19, 21, 26	Microteaching Presentations (in class)
September 21, 2022	Journal Entry
September 28, 2022	Journal Entry and Unit Overview
October 5, 2022	Journal Entry and Microteaching Reflection
October 19, 2022	Journal Entry and Unit Intro/Lesson Plan
October 26, 2022	Journal Entry and STSE Science
November 2, 2022	Journal Entry
November 9, 2022	Journal Entry and CER activity (in class)
January 18, 2023	Journal Essay
January 25 – February 8, 2023	Group Presentations

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 on-site) 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.

Ontario Curriculum & Supplementary Resources:



**Curriculum &
Resources**

dcp.edu.gov.on.ca/en

Campus 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