

EDUC 5236 Mathematics for Teachers

Instructor:

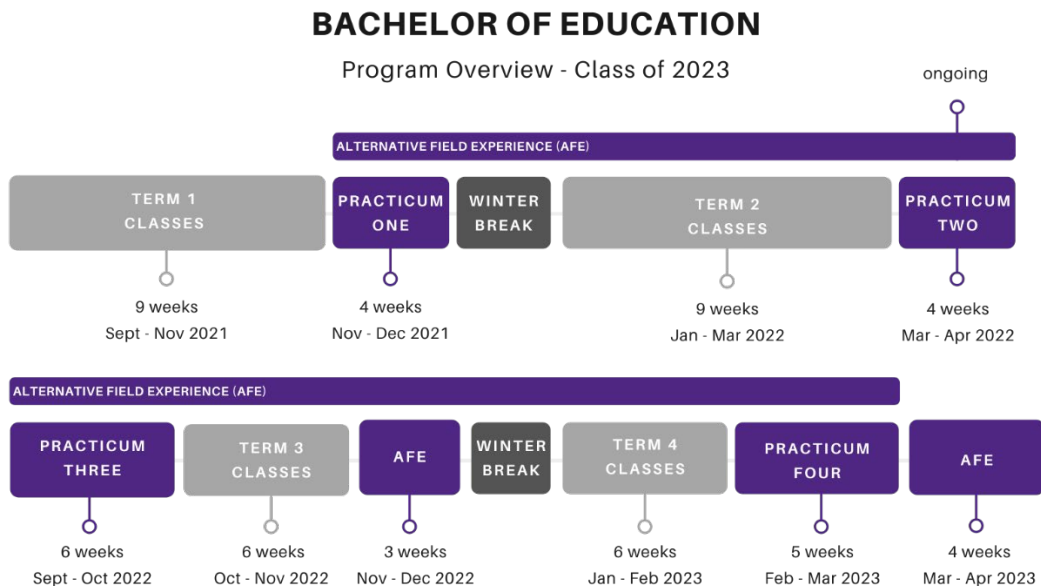
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Office Hours: by appointment

Schedule:

Section 001: Wed 2:30PM-4:30PM,
Room: 2040

Program Context:

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



Mathematics for Teachers (EDUC 5236)

A focus on making mathematics engaging and meaningful for learners. Participants explore ways to develop connected knowledge, consistent beliefs, and positive attitudes towards mathematics, and are introduced to research on the nature, role, and development of teachers' knowledge of mathematics. 2 hours per week, full year, .5 credit.

The goal of the course is to develop conceptual knowledge of mathematics related to topics for teaching intermediate/senior mathematics.

This course provides an opportunity for teacher candidates to work cooperatively in small groups, to learn in depth, to share with the whole class the conceptual structures related to key mathematical concepts necessary for successful teaching of intermediate/senior mathematics in Ontario, and to enable you to become mathematics leaders and agents of change in the wider mathematics education community.

There are no required materials for this course. You will be provided with electronic/paper documents and links to various websites. You will search and access resources from our online library.

Number of Credits : 0.5

Number of Weeks: 18

Week 1: Parallel Lines

- Activity: Parallel lines
- Course and Assignment 1 Orientation

Week 2: Symmetry as a transformation

- Activity: Symmetry as a transformation
- Working on Assignment 1

Week 3: Odds & Evens

- Activity: Odds & evens (linear & non-linear)
- Working on Assignment 1

Week 4: Why elephants have big ears

- Activity: Why elephants have big ears
- Working on Assignment 1

Week 5: Assignment 1 Updates

- Updates on Assignment 1

Week 6: Infinity & Limit

- Activity: Infinity & limit
- Working on Assignment 1

Week 7: Density

- Activity: Density
- Working on Assignment 1

Week 8: Presentations

- Assignment 1 presentations/activities

Week 9: Presentations

- Assignment 1: Presentations/activities

Week 10: Binary Choice

- Activity: Binary choice
- Working on Assignment 2

Week 11: Circular Functions

- Activity: Circular functions
- Working on Assignment 2

Week 12: Analysis of Functions

- Activity: Analysis of functions
- Working on Assignment 2

Week 13: Sustainable Growth

- Activity: Sustainable growth
- Working on Assignment 2

Week 14: Binary Choice

- Activity: Binary choice
- Working on Assignment 2

Week 15: Conceptual Understanding

- Activity: Developing a model for conceptual understanding of mathematics
- Working on Assignment 2

Week 16: Mathematics Education Reform

- Activity: Developing a model for mathematics education reform
- Working on Assignment 2

Week 17: Presentations

- Assignment 2 presentations/activities

Week 18: Presentations

- Assignment 2 presentations/activities

Assessment Activities

Type	Name	Description
Assignment	Due: Wk 9 Assignment 1	Learn in depth the conceptual structure of an intermediate mathematics topic
		A. Project description (500 words): topic, rationale curriculum connections, goal - due Week 5
		B. Conceptual structure of topic: historical development, relational concept map
Assignment	Due Wk 18: Assignment 2	C. Story structure of topic: scripting of conceptual surprises and insights
		Learn in depth the conceptual structure of a senior mathematics topic
		A. Project description (500 words): topic, rationale curriculum connections, goal - due Week 14
Assignment	Due Wk 18: Assignment 3	B. Conceptual structure of topic: historical development, relational concept map
		C. Story structure of topic: scripting of conceptual surprises and insights
		End of course reflection (1,000 words)
Assignment	Assessment Guidelines	A. Reflection: What did you do. What did you/learn What did/do you wonder about? What's next?
		Assessment is Pass/Fail.
		Assignments may be completed individually or in groups of 2-4.
Assignment	Assessment Guidelines	Assignments are not tests. You may seek help from peers and from the instructor.
		Assessment descriptions will be further elaborated in class.

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