

**EDUC 535.07: Specialization II Elementary Mathematics**  
**Fall 2021**

Section	Instructor	Time	Location	Email
S01	Prof. Jo Towers	12.30-13.50	Online	towers@ucalgary.ca

Class Dates: MWF, 8<sup>th</sup> September 2021- 29<sup>th</sup> October, 2021

Last Day to Add/Drop/Swap: Due to the non-standard dates associated with this program, please check your Student Centre for the important dates pertaining to your section.

Pre-requisite: Due to the multiple pathways in the Bachelor of Education, please consult Undergraduate Programs in Education for questions related to pre-requisite courses.

Office Hours: By appointment only

Email: Students are required to use a University of Calgary (@ucalgary.ca) email address for all correspondence.

**COURSE DESCRIPTION:**

The intent of the Specialization Seminar II is to deepen students' understanding of the practical aspects of teaching within the specialization and to connect this practice with specific theoretical concepts. While this second specialization course focuses more on practical knowledge, students will also refine their knowledge of discourse and theory within the discipline and develop a deeper understanding of ways to enact this theory in a classroom context. Students will additionally become familiar with relevant Ministry documents associated with the Alberta curriculum and draw on practical classroom observation from the field experience to participate in meaningful discussion and to connect these observations with a vision for their own teaching. The emphasis of the course is on designing for student learning (subject-specific; assessment that strengthens student learning and improves instruction; and designing for inclusion, differentiation, and inquiry).

**LEARNER OUTCOMES:**

Over the course of the semester, students will

- 1) Further develop a deeper conceptual understanding of the historical, socio-cultural, political contexts of the discipline, and relate this to curriculum planning in the specialization area;
- 2) Identify and critique the key learning perspectives (as outlined in the front matter of the Program of Study) and intentions (learning objectives) across the units in a grade from the Alberta Program of Study for Mathematics;
- 3) Successfully apply theoretical knowledge to the design of a longer-term unit and assessment plan.

**COURSE DESIGN AND DELIVERY:** This course will be delivered online, with synchronous sessions via Zoom and asynchronous activities within Desire2Learn (D2L).

**REQUIRED RESOURCES:**

Required readings will be made available through D2L.

**ADDITIONAL RESOURCES:**

While not required, you may find the following resources helpful as you build your own professional library:

- Alberta Education Program of Study for Mathematics  
[https://www.alberta.ca/programs-of-study.aspx?utm\\_source=redirector](https://www.alberta.ca/programs-of-study.aspx?utm_source=redirector)
- Alberta Education. (2011). *English as a Second Language Proficiency Benchmarks*.  
<http://www.learnalberta.ca/content/eslapb/>
- Alberta Learning. (2010). *Making a difference: Meeting diverse learning needs with differentiated instruction*. [https://education.alberta.ca/media/384968/makingadifference\\_2010.pdf](https://education.alberta.ca/media/384968/makingadifference_2010.pdf)
- Boaler, J. (2015). *Mathematical mindsets: Unleashing students' potential through creative math, inspiring messages and innovative teaching*. San Francisco, CA: Jossey-Bass.  
<https://ebookcentral-proquest-com.ezproxy.lib.ucalgary.ca/lib/ucalgary-ebooks/detail.action?docID=4444210>
- Small, M. (2015). *Making math meaningful to Canadian students, K-8* (3<sup>rd</sup> Ed.). Toronto, ON: Nelson.  
[https://ucalgary-primo.hosted.exlibrisgroup.com/permalink/f/13e4ecq/01UCALG\\_ALMA21603432160004336](https://ucalgary-primo.hosted.exlibrisgroup.com/permalink/f/13e4ecq/01UCALG_ALMA21603432160004336)
- Van de Walle, J.A., Karp, K.S., Bay-Williams, J.M., & McGarvey, L. M. (2017). *Elementary and middle school mathematics: Teaching developmentally*, 5<sup>th</sup> Canadian Ed. Toronto, ON: Pearson.  
[https://ucalgary-primo.hosted.exlibrisgroup.com/permalink/f/13e4ecq/01UCALG\\_ALMA21685767650004336](https://ucalgary-primo.hosted.exlibrisgroup.com/permalink/f/13e4ecq/01UCALG_ALMA21685767650004336)

**LEARNING TASKS OVERVIEW**

LEARNING TASK	DESCRIPTION OF LEARNING TASK	GROUP / INDIVIDUAL	WEIGHT	DUE DATE
Learning Task #1	Teaching Resources	Group	40%	Friday 24 <sup>th</sup> September, 2021
Learning Task #2	Unit and Assessment Plan	Individual	40%	Wednesday 20 <sup>th</sup> October, 2021
Learning Task #3	Engaging the Collective	Individual	20%	Friday 29 <sup>th</sup> October, 2021

**WEEKLY COURSE SCHEDULE:**

Date	Topic	Readings and Tasks	Due Dates
Week of 8 <sup>th</sup> Sept 2021	<ul style="list-style-type: none"> <li>Welcome &amp; Introduction</li> <li>Deconstructing field experience</li> <li>Setting our agenda</li> </ul>	Alberta Learning. (2000). <i>Program of Study for Mathematics</i> (see link under additional resources).	
Week of 13 <sup>th</sup> Sept 2021	<ul style="list-style-type: none"> <li>Identifying and understanding the key learning perspectives and intentions in the Alberta Program of Study for Mathematics</li> </ul>	TBA	
Week of 20 <sup>th</sup> Sept 2021	<ul style="list-style-type: none"> <li>Developing a deeper conceptual understanding of teaching for, and through, inquiry in mathematics</li> </ul>	TBA	Learning Task 1 Due Friday 24 <sup>th</sup> September 2021
Week of 27 <sup>th</sup> Sept 2021	<ul style="list-style-type: none"> <li>Designing a Unit and Assessment Plan</li> </ul>	TBA	
Week of 4 <sup>th</sup> Oct 2021	<ul style="list-style-type: none"> <li>Mathematics and Social Justice/Culturally-relevant pedagogy</li> </ul>	TBA	
Week of 11 <sup>th</sup> Oct 2021	<ul style="list-style-type: none"> <li>English Language Learners and Mathematics</li> </ul>	No class Monday 11 <sup>th</sup> October—Thanksgiving	
Week of 18 <sup>th</sup> Oct 2021	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	TBA	Learning Task 2 Due Wednesday 20 <sup>th</sup> October 2021
Week of 25 <sup>th</sup> Oct 2021	<ul style="list-style-type: none"> <li>Applying knowledge in new contexts</li> <li>Preparing for teaching</li> </ul>	TBA	Learning Task 3 Due Friday 29 <sup>th</sup> October 2021

**CHANGES TO SCHEDULE:**

Please note that changes to the schedule may occur to meet the emerging needs and dynamics of the participants in the course.

**LEARNING TASKS AND ASSESSMENT**

There are 3 required Learning Tasks for this course.

**1. LEARNING TASK 1: Teaching Resources – DUE: Friday 24<sup>th</sup> September 2021, 40%**

For this assignment, you will work in a group to source, and post onto D2L, a minimum of 3 teaching ideas that demonstrate that you understand what it means to choose rich, flexible tasks that will engage diverse learners in mathematical inquiry while addressing topics relevant to the Alberta Program of Study for Mathematics. Further details about this assignment will be discussed in the first class.

**CRITERIA FOR ASSESSMENT OF LEARNING TASK 1**

Teaching resources will be assessed on the following criteria:

1. Quality and meaningfulness of the teaching ideas.
2. Breadth (demonstrated by covering a number of topic (or even subject) areas within one idea, or by showing how your idea could be used with several grade or ability levels.)
3. Usefulness (there should be enough detail to be useful, but your descriptions should be brief enough for browsing.)
4. Clarity (a teaching resource such as this will only be useful to you in the future if the ideas are clear.)
5. Inquiry-oriented (the ideas should demonstrate that you understand what it means to choose rich, flexible tasks that will engage diverse learners in inquiry while addressing topics relevant to the Alberta Program of Study for Mathematics.

**2. LEARNING TASK 2: Unit and Assessment Plan – DUE: Wednesday 20<sup>th</sup> October 2021, 40%**

For this assignment, students will work independently to design a unit learning plan, including an assessment plan, illustrative of key aspects of theory introduced in the course. The plan should be designed to sponsor deep understanding of a key disciplinary concept and/or competency.

Checklist of specific items for your unit plan:

- A. Unit Title, Subject Area, and Topic** – *The theme of your unit.* This should be developed in consultation with your instructor and should be clearly and specifically titled.
- B. Reference to Alberta Education Curriculum or standards**, as it applies to your discipline/unit. Identify how your unit fits within the Alberta curriculum. Provide an explanation if it doesn't fit explicitly.
- C. Grade Level**—*The grade in which the material is to be taught.*
- D. Unit Rationale**—*Provide a paragraph where the value of the unit is presented.* This rationale should support your choice to create a full unit on this topic.
- E. Learning Outcomes**—*Describe the longer-term learning outcomes for the overall unit.* In addition, in each lesson plan describe the learning outcomes or goals for that specific lesson (shorter term). Five or six learning outcomes should define what the students should know/be able to do by the end of the unit.

- F. Key Instructional Practices and Procedures**—Detail the main methods for teaching through the unit. This is specifically about how you will teach the content. Will the students work as a whole class, in groups, or individually? How will you transition into different activities? How will you scaffold activities? How will materials be used? Etc. Include reference to how you plan to infuse technology and note possible ways to incorporate interdisciplinarity. Not every lesson needs to have whole class teaching *and* group work *and* technology infusion *and* use of manipulatives, etc., but a range of approaches should be represented within the unit.
- G. List of Sources**—All sources consulted in preparation of the unit should be listed. Note: multiple sources are expected. Present a reference page in APA format.
- H. List of Materials**—List all the materials needed to teach each lesson within the unit. Be specific!
- J. Learner Differentiation/Explanation of how the unit plan addresses all students' needs** Demonstrate how your plan addresses the interests and needs of a range of students. Show how you will teach inclusively. For example, how will you address students with special needs? English language learners? Gifted students? Students who excel at group work or at independent time?

### CRITERIA FOR ASSESSMENT OF LEARNING TASK 2

In collaboration with your peers and instructor, you will develop the assessment criteria for this assignment based on these five key themes:

- **Building and deepening understanding.** Strong learning tasks that foster inquiry and focus students on key disciplinary concepts and competencies.
- **Informed by disciplinary knowledge/Programs of Study.** Making meaningful connections to ways of thinking about the discipline, and in alignment with the Program of Study.
- **Authentic and engaged learning.** Learning is designed to be meaningful and relevant to students and to the broader community, and is of real concern and central to the discipline.
- **Balanced assessment.** Assessment of learning provides a comprehensive and holistic picture of student learning and competencies.
- **Differentiated learning.** Addresses the diversity and range of students' needs (must include ELL strategies or integration).

### 3. LEARNING TASK 3: Engaging the Collective—DUE: Friday 29<sup>th</sup> October 2021, 20%

Since collaboration with peers will be an important part of our activities, engagement features as an element of the assessment for this course. For this assignment you will be required to submit, by the due date, a self-assessment portfolio documenting the ways in which you have engaged our collective over the semester. I will be looking for documentation of active student engagement in our activities, however I will be careful not to equate engagement with quantity of verbal or posted contributions. There are many ways in which you can demonstrate your engagement and we will discuss these as we proceed. Full criteria for assessment of your engaging of the collective will be jointly created by the course participants and the instructor during the course but will include those noted below.

### CRITERIA FOR ASSESSMENT OF LEARNING TASK 3

I will be looking for evidence of the following kinds of engagement in our scholarly community. This is not intended to be an exhaustive list of all the ways in which you might participate, and we will add to this list of possibilities in class:

- Sharing links to relevant resources
- Posting thoughtful questions, comments, and responses online
- Actively listening to others
- Contributing in discussions
- Asking thoughtful questions
- Sharing personal experiences
- Taking risks in your learning
- Offering a counter-argument
- Bringing relevant media reports to our attention

### **THE EXPECTATION OF EXCELLENCE IN PROFESSIONAL WORK**

Please review the Academic Calendar carefully. It describes the program and provides detailed schedules and important dates. It contains information on expectations for student work and professional conduct. In addition, procedures are described regarding concern about student performance in the program. Please pay especially careful attention to details and descriptions in the following topic areas:

- *The Importance of Attendance and Participation in Every Class*

As this is a professional program, experiences are designed with the expectation that all members will be fully involved in all classes and in all coursework experiences. As you are a member of a learning community your contribution is vital and highly valued, just as it will be when you take on the professional responsibilities of being a teacher. We expect that you will not be absent from class with the exception of documented instances of personal or family illness or for religious requirements.

- *Engagement in Class Discussion and Inquiry*

Another reason for the importance of attendance and participation in every class is that the course involves working with fellow students to share ideas and thinking. For example, each class you will work with a small group to engage fellow students in discussions on work being considered in class. You will also help other groups by providing ideas for scholarly inquiry in assignments. If you find that you are experiencing difficulties collaborating as a group, please inform the instructor.

### **EXPECTATIONS FOR WRITING:**

All written assignments (including, to a lesser extent, written exam responses) will be assessed at least partly on writing skills. Writing skills include not only surface correctness (grammar, punctuation, sentence structure, etc.) but also general clarity and organization. Sources used in research papers must be properly documented. If you need help with your writing, you may use the writing support services in the Learning Commons. For further information, please refer to the official online University of Calgary Calendar, Academic Regulations, E. Course Information, E.2: Writing Across the Curriculum: <http://www.ucalgary.ca/pubs/calendar/current/e-2.html>

**LATE SUBMISSIONS:**

All late submissions of assignments must be discussed with the instructor **prior to the due date**. Students may be required to provide written documentation of extenuating circumstances. A deferral of up to 30 days may be granted at the discretion of the Associate Dean of Undergraduate Programs with accompanying written evidence.

**ISSUES WITH GROUP TASKS:**

With respect to group work, if your group is having difficulty collaborating effectively, please contact the instructor immediately. If a group is unable to collaborate effectively or discuss course materials online in a timely manner, the instructor may re-assign members to different groups or assign individual work for completion.

**GRADING**

Grade	GPA Value	%	Description per U of C Calendar
A+	4.0	95-100	Outstanding
A	4.0	90-94	Excellent – Superior performance showing comprehensive understanding of the subject matter
A-	3.7	85-89	
B+	3.3	80-84	
B	3.0	75-79	Good - clearly above average performance with knowledge of subject matter generally complete
B-	2.7	70-74	
C+	2.3	65-69	
C	2.0	60-64	Satisfactory - basic understanding of the subject matter
C-	1.7	55-59	
D+	1.3	52-54	Minimal pass - Marginal performance
D	1.0	50-51	
F	0.0	49 and lower	Fail - Unsatisfactory performance

Students in the B.Ed. program must have an overall GPA of 2.5 in the semester to continue in the program without repeating courses.

**Academic Accommodation**

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit [www.ucalgary.ca/access/](http://www.ucalgary.ca/access/). Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their Instructor. The full policy on Student Accommodations is available at <http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf>.

**Academic Misconduct**

For information on academic misconduct and its consequences, please see the University of Calgary Calendar at <http://www.ucalgary.ca/pubs/calendar/current/k.html>

**Attendance/ Prolonged Absence**

Students may be asked to provide supporting documentation for an exemption/special request. This may include, but is not limited to, a prolonged absence from a course where participation is required, a missed course assessment, a deferred examination, or an appeal. Students are encouraged to submit documentation that will support their situation. Supporting documentation may be dependent on the reason noted in their personal statement/explanation provided to explain their situation. This could be medical certificate/documentation, references, police reports, invitation letter, third party letter of support or a statutory declaration etc. The decision to provide supporting documentation that best suits the situation is at the discretion of the student.

Falsification of any supporting documentation will be taken very seriously and may result in disciplinary action through the Academic Discipline regulations or the Student Non-Academic Misconduct policy.

<https://www.ucalgary.ca/pubs/calendar/current/n-1.html>

**The Freedom of Information Protection of Privacy Act** prevents instructors from placing assignments or examinations in a public place for pickup and prevents students from access to exams or assignments other than their own. Therefore, students and instructors may use one of the following options: return/collect assignments during class time or during instructors' office hours, students provide instructors with a self-addressed stamped envelope, or submit/return assignments as electronic files attached to private e-mail messages.

**For additional resources including, but not limited to, those aimed at wellness and mental health, student success or to connect with the Student Ombuds Office, please visit**

<https://www.ucalgary.ca/registrar/registration/course-outlines>

**Education Students Association (ESA)** President for the academic year is Kyle Corry,  
[esa@ucalgary.ca](mailto:esa@ucalgary.ca).

**Werklund SU Representative** is Dwani Joshi, [educrep@su.ucalgary.ca](mailto:educrep@su.ucalgary.ca).