



Course Title: **Mathematics for the Intermediate and Senior Divisions**

Course Code: **Educ4887**

Course Value: 3 credits

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Office Hours: 12:30-1:00 Monday, Wednesday, Thursday, and Friday—You are welcome other times but may need to set a time by email if you wish to meet.

Classes: Section 101: Mon. & Wed. 10:30–12:30 in H111

Section 102: Thur. & Fri. 10:30–12:30 in H111

Section 103: Mon. & Wed. 8:30–10:30 in H111

Section 104: Thur. & Fri. 8:30–10:30 in H111

NOTE: Please provide section number for any email communication! Please also stick to your allotted section.

**Textbook:** The following will be used with emphasis on the curriculum document. All are available (free) electronically.

- ✓ Ministry of Education Mathematics Curriculum Documents
- ✓ Growing Success (2010) – regarding assessment, evaluation and report cards.
- ✓ Guides to effective instruction: Grades 4-6 (Available on EduGains website [www.edugains.ca](http://www.edugains.ca))
- ✓ Think Literacy: Grades 7-12 subject specific documents – Mathematics grades 7-9 (2004).
- ✓ Targeted Implementation and Planning Supports for Revised Mathematics (TIPS4RM)
- ✓ A list of journal articles that combine math and specific teachable areas will be provided.

**Course Description:** Teacher candidates study techniques for developing mathematical skills necessary to teach students to be numerate citizens. Topics include financial numeracy and cross-curricular math usage.

**Learning Outcomes:** By the end of this course, students will:

1. Demonstrate a detailed understanding of instructional methods for teaching the Ontario Junior and intermediate mathematics curriculum.
2. Demonstrates understanding of the relationship between assessment, evaluation, instructional planning, and their impact on learning
3. Demonstrates personal, practical, and professional growth in response to feedback provided in various settings
4. Demonstrates an appreciation of the uncertainty, ambiguity, and limits to knowledge (e.g., self, student, content, context) and how this might influence learning (e.g., environment, instructional cycle)
5. Engages in ongoing reflective practice with an emphasis on interdisciplinary knowledge.

**Instruction:** This course addresses all senior students and is based on three essential ideas. First that numeracy, like literacy, is a moral responsibility of all teachers and extends beyond the content of the mathematics curriculum because of its fundamental societal importance. Second, that many early-career teachers find themselves having to teach some math courses and we will look at how to accomplish that. Third is an interdisciplinary slant where we will consider how your teachables may be able to work with numeracy/mathematics to enhance student learning. In terms of all three aspects students are reminded of the OCT duty of care that encourages “compassion, acceptance, interest and insight” as we cross teachable boundaries.

**Evaluation:** All evaluations are to be submitted electronically through BlackBoard unless there are extenuating circumstances requiring the use of a hardcopy. (If there is a problem using BlackBoard, please email the assignment to me as an attachment ideally with a file name starting with your last name and specifying the section of the course in the body of the email.) All standard file formats are accepted and I will email you if there is any issue with a particular format. In the past Word, Adobe, Pages, and OpenOffice have all been used successfully.

Graded assignments will be returned electronically using inserted comments. Note that in some software, such as the Adobe Reader, it is necessary to turn on the comments in order to see them. Please also be advised that in the following assignment explanations the rubrics are only presented with levels 2 to 4+. Levels of 1 and “R” will be used when necessary and details will be provided should this occur.

**1. “Do some math!”**

During the course there will be various quizzes/activities specific to content. Details about the content will be given in advance and opportunities for review will occur. The focus will generally be grade 9 skills, but note that this includes all grade 9 courses, which may include some topics that are less familiar to students (such as Imperial units). The course will provide instruction on less familiar topics and review more commonly known topics. The assignment is to refresh the many math skills you proved you had during high school so that they are more readily available when you are called on to teach math. Overall value is 25%.

Dates will vary but will notably include the last class.

**2. “If I have to...I guess...”**

Great news! You have found your ideal teaching role. Only problem is you have to teach math. You will be assigned a course and topic in our class. The assignment is to provide a paragraph or two of context and develop a lesson plan for a 70-minute class. The context should clarify a scenario for what has been taught in the lessons or units prior to the lesson plan and what will follow it in the lessons and units after. You may also wish to provide some details of the scenario school if they are relevant to understanding the lesson. Overall value 35% as broken down in the rubric.

Due three hours after the end of your second scheduled class the week of Feb. 3–7.

Criterion	4+	Level 4	Level 3	Level 2
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	(90-100)	(80-89)	(70-79)	(60-69)
Curriculum appropriate (10%)	Level 3 and suitable connections beyond the curriculum document	Level 2 with evidence of considerations of “front matter” of the curriculum	Addresses Specific and General expectations.	Focus is on a specific expectation or a general expectation only.
Variety (10%)	Level 4 with links to math resources beyond the Ministry of Education.	A selection of good activities and pedagogical approaches are embedded in the lesson.	Ideas are somewhat limited in scope.	Significant gaps or potential for errors.
Math specific aspects “Where math is mentioned it is...” (10%)	...included in an effective and appropriate manner.	...usually effective and appropriate.	...effective and appropriate some of the time. (Also this level if it is rarely included.)	...often unclear how accurate it is or contains significant areas of concern. (Also this level if it is rarely and inaccurately used.)
Connections (5%)	Level 3 and clear how the lesson will set up what will be taught later in the course.	Connections make it clear how the lesson connects with teaching that has gone before it.	Connections to context are given with few details.	Limited context makes it difficult to understand the place of the lesson.

### 3. “Math isn’t everywhere...until you prove it...”

There is a cliché that “math is everywhere,” but actually it is numeracy that is everywhere. Numeracy bridges between math and your teachables as well as your day-to-day experiences. For this assignment you may work with a partner (handing in one assignment for the pair) and you are to clarify how numeracy—a concept that will be clarified in class—intersects with both your daily life and with your other teachables.

Include, with your assignment, an appraisal of the scope of math within your teachable(s) and in day-to-day life. Is math everywhere? Are connections in your teachable(s) more than numeracy?

The overall product should include artifacts that are demonstrative of the connections. You will need to communicate and clarify exactly what the details of the connections are. You need to clarify what your specific examples imply about the broader notion that “math is everywhere.”

Note: If physics is a teachable be careful to consider how math used in physics differs from math used in math classes. This is not as obvious as some physics students would have you believe because only some math is observed through the scientific method. Value is 40%.

Due three hours after the end of your second scheduled class the week of March 30–April 3.

Criterion for each activity	4+ (90-100)	Level 4 (80-89)	Level 3 (70-79)	Level 2 (60-69)
Connection to teachable(s) (15%)	Level 4 with good use of content specific language.	Level 3 with a high degree of utility for teaching both your teachable(s) and math.	Clear connection to two teachables or one teachable with more detail.	Connection to teachables has gaps or requires interpretation.
Connection to Day-to-day (10%)	Level 4 with at least one example that shows unique qualities.	Level 3 with a high degree of utility for teaching both your teachable(s) and math.	Clear connection to two teachables or one teachable with more detail.	Connection to teachables has gaps or requires interpretation.
Artifacts	The artifacts show that you have recognized a	A collection of artifacts that clearly	A range of artifacts showing there are	Artifacts are limited in scope.

(10%)	resource to support your classroom pedagogy.	support the connections you have made.	options for your lessons.	
Opinion about the scope of math (5%)	Level 4 with a high degree of coherence.	Level 3 with details connecting the opinion to the other facets of the assignment.	A clearly articulated opinion.	The articulated opinion is limited in scope and missing details.

Note regarding use of third party materials: Teachers routinely modify materials from third parties. In this course, it is necessary to cite all third party resources that you have contributed significantly to the development of your work. It is your responsibility to provide the source of materials you use. For example, if you find a lesson plan on the internet and adapt it to your teaching with a new lesson plan, you should include a statement that provides the URL for the original lesson plan. (Note: submission of the third party lesson plan constitutes academic dishonesty.)

Please be aware of my policy regarding extensions for assignments. All extensions must be negotiated prior to the due date and that, even with an extension, marks can be deducted according to the circumstances of the extension. In all circumstances, including marks of zero, students may hand in the assignment for descriptive feedback.

### **Important Course Policies:**

1. This course outline contains all pertinent information with regard to expectations for and requirements of this course.
2. Students are expected to arrive for class on time, be prepared (i.e., required readings completed before class), and to conduct themselves professionally. This means that activities such as talking out of turn, completing work for other courses, listening to iPods, checking cell phone messages, web-surfing, and using computer applications such as email and Facebook are inappropriate in-class activities and are a distraction to you, your classmates, and the instructor.
3. Students must use their Nipissing e-mail address when emailing the course instructor. All email communication should be professional in tone and content.
4. If a student is absent for a scheduled test or in-class assignment, it is the student's responsibility to contact the instructor as soon as possible. The student must provide appropriate documentation for the absence before a request to make up missed work will be considered.
5. Students are responsible for keeping back-up copies of all written work and assignments for this class.
6. Assignments have identified due dates. Work must be submitted on time. Extensions must be negotiated prior to the due date and will only be considered in cases of

extenuating circumstance and at the discretion of the professor. A late penalty of 5 percent per day will be assessed on all late assignments.

#### 7. University Policy Reminders:

Please review the policies that pertain directly to attendance and exams.

The attendance policy is found at the following link:

<http://www.nipissingu.ca/calendar/regulations/academic/Pages/Attendance.aspx>

The Nipissing University policy on academic dishonesty in the Course Calendar -

<http://www.nipissingu.ca/calendar/regulations/academic/Pages/Student-Appeals-and-Petitions.aspx#dishonesty>

#### 8. Student Accessibility Services (SAS)

Student Accessibility Services assists students with permanent and temporary disabilities. Disabilities supported include, but are not limited to: Learning Disabilities, Mental Health, ADHD, Sensory Disabilities, Medical Disabilities and Physical Disabilities

If you have or suspect you have a disability for which you require academic accommodation or supports, please visit the SAS team in B210 or get more information on the Nipissing University SAS webpage ([www.nipissingu.ca/sas](http://www.nipissingu.ca/sas)).