

# Math 2090 Course Outline

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## Abstract

This is a math course for students who wouldn't otherwise take a math course. In particular, it is meant for anyone whose past relationship with math was less than ideal, and who wants to get on better terms with the subject. It is intended primarily for Education students who anticipate a career as an elementary school teacher. Whatever your major, you'll find yourself some day in a room full of ten year olds, trying to get them excited about fractions. Our goal in this course is to help ease any anxieties you may have, to ensure that those anxieties don't get passed along to the kids in your classroom.

## 1 Introduction to Math 2090

Welcome to Math 2090, Number Systems. This course is intended for students who do not have a strong background in mathematics, and who typically will take no other courses in mathematics at the university level. Most students who take the course are in Education, and thinking about teaching at the elementary level. Because of this, education-related themes will appear throughout the course.

There are many of us in this class, coming from many different backgrounds and situations. If the "default settings" for the class don't work for you, please don't hesitate to ask for accommodation. Although we are officially "in-person", COVID has not gone away, and I don't expect everyone to be able to physically attend every class.

We begin with some introductions: to the university, to the staff, and to the course.

### 1.1 Welcome to the University of Lethbridge

Oki, and welcome to the University of Lethbridge. Our University's Blackfoot name is Iniskim, meaning Sacred Buffalo Stone. The University of Lethbridge acknowledges and deeply appreciates the Siksikaitapii peoples' connection to their traditional territory. We, as people living and benefiting from Blackfoot Confederacy traditional territory, honour the traditions of people who have cared for this land since time immemorial. We recognize the diverse population of Aboriginal peoples who attend the University of Lethbridge and the contributions these Aboriginal peoples have made in shaping and strengthening the University community in the past, present, and in the future.

Everything you need to know for the course will flow through our Moodle<sup>1</sup> learning management system. Make sure you check in regularly to keep on top of what's happening in the course.

Don't hesitate to reach out if you have questions. I'll do my best to answer all of your course-related questions as quickly as possible. If you have questions that are not related to the course,

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<sup>1</sup>moodle.uleth.ca

you can ask those too, and I'll try to answer, or to direct you to someone who can. Some resources can be found on the University's Health and Safety website<sup>2</sup>.

## 1.2 Course staff and contact information

Math 2090 meets three times each week in SA7212 (Science Commons). The “lectures” are every Tuesday and Thursday, 9:00 — 10:30 am. The “tutorial” meets every Monday at 11:00 am.

The lectures will actually be a mix of different activities. Some days will be used for quizzes and assignments. Others will be used for student presentations and student-led activities. The tutorial will actually be used for content delivery.

My name is Sean Fitzpatrick<sup>3</sup>. I can be reached via email at [sean.fitzpatrick@uleth.ca](mailto:sean.fitzpatrick@uleth.ca)<sup>4</sup>.

**Student hours:** Individual office hour appointments can be booked using **Calendly**. Details for this will be provided on Moodle, once I've figured out my schedule for this term. I'm using appointments rather than drop-in hours so you don't have to compete with calculus students for my attention. The grading method for this course works best if we meet regularly.

## 1.3 Course description

This course was originally developed by Shelly Wismath as a course for future elementary school teachers. The topics have varied from year to year, but some themes have persisted:

- A look at how numbers are represented in different historical and cultural contexts.
- Hands-on work with different types of arithmetic, including numbers in bases other than 10, and modular (“clock”) arithmetic.
- Fundamentals of arithmetic, including rules of algebra, fractions, and prime numbers.
- Some simple (but real) applications.

We will look at each of these topics, and we will spend time talking about how to make mathematics a more inclusive and welcoming space. Other topics may include the Alberta Education K-12 curriculum, and technology for teaching.

## 1.4 Course structure

The course is set up with meetings every Tuesday and Thursday morning. Class meetings will be used primarily for discussion and activities. I will try to minimize the amount of time I spend presenting content, although there will always be opportunities to ask for clarification and examples. There is also a tutorial every Monday, which will actually be used for content delivery.

I'll do my best to also support remote learning when needed. Lots can be done on your own time, even if you do make it to class. In class discussion will be supplemented by online discussion forums. (There will be a lot of that, actually.) I'll provide a Zoom link whenever someone can't attend in person, and where appropriate, I'll record our classes for later viewing.

## 2 Essential course information

This section covers essential course information, including the meeting times, textbook, and grading scheme.

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<sup>2</sup>[www.uleth.ca/services-for-students/health-safety](http://www.uleth.ca/services-for-students/health-safety)

<sup>3</sup>[www.cs.uleth.ca/~fitzpat](http://www.cs.uleth.ca/~fitzpat)

<sup>4</sup><mailto:sean.fitzpatrick@uleth.ca>

## 2.1 Course website

The primary course website is Moodle<sup>1</sup>. On Moodle, you can expect to find:

1. Links to important resources, like this syllabus, and the textbook.
2. Links to key course activities, like discussion forums.
3. Details about your grades and assessments.
4. A weekly topics schedule.

## 2.2 Course textbook

Mathematics for Human Flourishing<sup>2</sup>, by Francis Su.

The primary textbook for the class is arguably not a textbook. It's not a free/open resource either, but in this case I'm willing to break with my usual policy, because it's an excellent book, and one that I think will give you a perspective on mathematics you haven't encountered before. You can expect to be asked to read (and report on) on chapter of Francis Su's book before each class.

The book should be available through the campus bookstore, but you can also find it in various formats (including e-book) through online retailers.

For mathematical content, we will refer to the book Mathematics for Elementary Teachers<sup>3</sup>, by Michelle Manes. This book *is* a free OER textbook. You can access it online, and the bookstore will print you a copy if desired. (For most students, I think online access will be sufficient.)

Other resources will be provided on Moodle.

## 2.3 Assessment scheme

Math 2090 for Spring 2023 will be "ungraded". This doesn't mean there won't be assessments. (There will be plenty of those!) What it means is that the focus of my marking will be on feedback rather than a score. You will be responsible for tracking your effort throughout the semester, and for responding to the feedback you receive.

On quizzes and assignments, you will be asked to make corrections to any mistakes, and to write a short reflection on what you learned (including what you learned from your mistakes). You will need to collect your work, and these reflections, in a portfolio. At the end of the semester, we will review your portfolio together, and agree on a final grade. Typically, this will be the grade that *you* request, as long you're able to support your request with your portfolio. I reserve the right to refuse your requested grade if I don't think you've done the necessary work, or (what is more likely) I think you deserve a better grade than you've given yourself.

Below I have listed the different types of work expected in this course, along with guidelines on how you can assess your contributions.

### 2.3.1 Meetings

Each student will be expected to meet with me at least once during the semester to discuss their progress in the course, and again at the end of the semester to determine their final grade. These meetings are not technically assessments, but they are essential. A minimum requirement to pass the course is one midterm meeting, and one final meeting.

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<sup>1</sup>[moodle.uleth.ca](https://moodle.uleth.ca)

<sup>2</sup>[lethbridge.verbacompare.com/comparison?id=162582](https://lethbridge.verbacompare.com/comparison?id=162582)

<sup>3</sup>[pressbooks-dev.oer.hawaii.edu/math111/](https://pressbooks-dev.oer.hawaii.edu/math111/)

You are welcome to schedule additional meetings, either for guidance on your progress in the course, or to get help on course material, or just to discuss whatever else you feel like. For example, if you are not sure how to grade yourself on your quizzes or assignments, we can meet to go over your work to date.

### 2.3.2 Moodle forums

Each Moodle forum will be set up so that points are awarded. The points are strictly for you to be able to gauge your own progress in the course. Typically, an “A” student will earn over 90% of available points, a “B” student will earn 80-89% of available points, a “C” student will earn 70-79% of available points, a “D” student will earn 60-69% of available points, and a failing student will earn less than 60% of available points.

<b>Weekly reflections</b>	There will be a journal forum on Moodle, where you will be asked to reflect on what was covered in class each week. Your entries are visible only to me. Typically I expect two or three reasonably thoughtful paragraphs. I will reply to each entry, and if I think you need to say more, I will prompt you to do so. Each journal entry earns 10 points, to a maximum of 100 points.
<b>Reading forum</b>	<p>The reading forum will be used for discussion of the book by Francis Su. You may find his website<sup>a</sup> useful for this, especially the list of 100 questions for discussion<sup>b</sup>, which are organized by chapter.</p> <p>I generally expect each student to post one reflection per week, each from a different chapter. These reflections are visible to all students, and thoughtful/constructive replies are encouraged.</p> <p>There will be a maximum of 200 points for the reading forum. Your initial reflection is worth up to 10 points, and replies are worth up to 5 points. (In some cases, especially good replies will earn 10 points.)</p>
<b>Sharing forum</b>	<p>There will also be a general forum for asking questions and sharing information. In past versions of this course, students have found it useful to share resources they found online. If you find something you think will be interesting for others in the class, you should share a link to the resource, along with an explanation of why you found it useful.</p> <p>General discussion is worth up to 5 points, and a good sharing post is worth up to 10 points. The sharing forum will have a maximum of 100 points.</p>

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<sup>a</sup>[www.francissu.com/flourishing](http://www.francissu.com/flourishing)

<sup>b</sup>[www.francissu.com/flourishing-discussion](http://www.francissu.com/flourishing-discussion)

### 2.3.3 Quizzes and Assignments

These will cover the mathematical content in the course, and will be done in class. Your quizzes and assignments will not receive a numerical score. Instead, you will receive feedback on what needs to be improved/corrected. You will then write and submit a short reflection on the assessment and your feedback, as well as corrections to your work.

<b>Quizzes</b>	Quizzes will take place during class, and will usually be fairly short. You will work on your own for 25–30 minutes. Following that, you will have an opportunity to discuss the quiz with your classmates before submitting anything to me.
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**Assignments** Assignments can be done alone or in groups. You will have time to work on them in class, but you may need additional time outside of class.

For the purpose of self-assessment on your quiz and assignment work, please note that in this course, there should be no difference between getting everything right on the first try, and figuring it out once you've received feedback.

Every week, you can expect either a quiz or an assignment. Occasionally there might be one of each. In this category, A-level work consists of completing all assessments (excepting one or two missed due to illness), as well as corrections and a reflection once feedback is received. You should give yourself a lower grade if you miss several assessments, or if you do not put sufficient effort into completing the reflection and corrections.

### 2.3.4 Presentations and activities

In the past, a highlight of Math 2090 was seeing students present on topics, and even lead activities. (Activities have included everything from worksheets to relay races!) For several of the topics we discuss, I will leave some of the details to students. Some presentation topics will be assigned. For example, we begin the course with a look at different numeration systems. I will present one example in class (Egyptian numerals), and other examples will be left up to you. In years where there is a critical mass of Education students, we have had students present on a grade level in the K-6 curriculum.

By the end of the semester, I expect each student to be involved in two or three presentations. They can be done individually, or with a group. After each presentation, I will ask those students not involved to provide me with feedback for the presenter(s).

From an A student, I would expect you at least two presentations,<sup>4</sup> and to support your peers by providing a good audience during the presentation, and constructive feedback after the presentation.

### 2.3.5 Final project and portfolio

Two items are due at the end of term: a final project, and the portfolio of your term work.

The final project can be considered optional, depending on your ambitions. If you've been doing "A" work all semester and want to make the case for an A+, you're going to want to do a project. If you've missed a few assessments during the semester and want to bolster your case for a better grade, you're going to want to do a project. If you're busy with other courses and mostly okay with where you're at, you can let the project slide.

A project could simply be an essay (around 8-10 pages, plus references), or it could be something more hands-on. Websites have been a popular choice in past years, and I've also received some great posters and infographics.

The main requirement for a project is that it demonstrates that you've made an effort to learn something extra, beyond what was covered in class. In lieu of a project, I am also willing to offer a final exam as an alternative.

Your portfolio should be a record of all your work over the semester, including your reflections on assessments. For example, it would be completely fine to totally tank your first attempt at a quiz, but follow that attempt with corrections and a reflection that demonstrate that you learned from that experience. A good portfolio should tell a story of learning and growth throughout the semester.

Your portfolio should include one or two introductory pages in which you state what letter grade you are requesting, and then support your request with an outline your work. You can use

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<sup>4</sup>Either two presentations that demonstrate significant effort on your part, or three or more smaller-scale presentations.

this section to give a summary of your forum contributions rather than trying to include these in your portfolio. After the summary, please include a short write-up on each activity/presentation you contributed to class, and then each of your quizzes and assignments, along with any associated corrections and reflections.

For this course, the ability to *avoid* mistakes is not important. What I want to see is that when you do make mistakes, you *learn* from them. You will use your reflections and your portfolio to provide evidence of this.

Your work for this course falls into three categories: forums, quizzes and assignments, and presentations. You should decide your base letter grade in each category based on the following guidelines:

- You should give yourself an A grade if you've done (almost) all the expected work, at a level of quality/effort that we agree is satisfactory.
- If you've fallen just short on doing the expected work, or you've done the work, but haven't consistently put in your best effort, you're probably at a B.
- A grade of C represents work that is good, but inconsistent.
- A grade of D or F should only apply when you've failed to complete significant portions of your work.

When it comes to deciding on “decorated” letter grades (such as C+ or A-), you should consider all three categories together:

- To earn an A+ grade, you need to have A level work in all three categories, and you also need to submit a final project.
- You can earn a B+ if your work is mostly at a B level, but you have one category where you've exceeded expectations for a B. (The same principle applies for a C+ or D+.)
- If your work is mostly at an A level, but you fall short in one category, a grade of A- would be appropriate. (The same applies for B- and C-.)

For any grade, if the grade you think you've earned is less than the grade you want, you can use a final project to boost your grade.

### 3 Technology elements

Our class is run in a blended format, with both online and in-person elements. This section provides details on the different pieces of technology we use.

#### 3.1 OneNote

IT provides us with a OneNote *class notebook*. This is a OneNote notebook that includes sections where I can share content with you (read only), as well as a personal section for each student (accessible only by you and me), and a *collaboration space* that can be used for group work.

You will need to use your U of L account to sign into Office 365. Once you do, you can access our class notebook from a web browser, the desktop program, or the mobile app.

For assignments, I will set each group up with a section in the collaboration space that only members of the group can access.

## 3.2 Crowdmark

Crowdmark is an online grading system that can be used for both in-class quizzes and take-home assignments. I will use Crowdmark so that I can return your feedback as soon as it's ready, rather than waiting until class. Use of Crowdmark will also help accommodate anyone who needs to submit work remotely. For ease of reference, I've placed advice for using Crowdmark<sup>1</sup> on a separate page. For in-class quizzes, I will scan and upload your work for you. For take-home assignments, you will submit the work yourself.

Basic advice for submitting to Crowdmark:

- Start each question on a clean sheet of paper.
- Use a scanner, or a scanning app on your smartphone. PDF is best, but JPG and PNG files are also supported.
- When you submit, make sure your pages are in order, and rotated correctly.

## 3.3 Zoom and other video

Since classes are now “back to normal”, Zoom is no longer an official tool for the course. However, I will try to support anyone who needs to attend remotely by providing a Zoom link. I will also use Zoom to record at times when I'm delivering content.

## 4 Course policies (an FAQ)

This section deals with questions about accommodations, missed tests, and other exceptional (yet common) cases.

### 1. *Is there a class code of conduct?*

Yes. This class is designed to provide an inclusive space for all students, including those who have previously been made to feel like they don't belong in a math class. I expect everyone to treat their classmates with dignity and respect. I expect interactions during group work and in-class presentations to be mutually supportive, and never judgemental. In short, be kind.

### 2. *I don't think I can attend the classes regularly. Can I still take the course?*

Short answer: yes. I recognize that not all students have access to the same technology. If your home internet is unreliable, attending Zoom sessions could be a challenge. If you can't attend synchronous sessions, I will arrange alternatives for graded work done asynchronously. I will also try to connect you with other students in the same situation, so that you still have a group you can work with.

### 3. *What happens if I get sick?*

I'll do my best to be accommodating of any illness that interrupts your studies. There is no need to provide details of the illness. If you miss a week or more of work, please get in touch to make a plan for catching up. One of the biggest challenges in math is that once you fall behind, it's difficult to catch up on your own.

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<sup>1</sup>[www.cs.uleth.ca/~fitzpat/crowdmark.html](http://www.cs.uleth.ca/~fitzpat/crowdmark.html)

4. *What exactly does academic honesty mean?*

In short, that any work you represent as your own, is your own. Much of your work can be done in groups, but not all of it. Using online tools like GeoGebra and Desmos is great, and something you might want to use in your own classroom some day.

Use of these tools is acceptable, but take care that you are not overly reliant on them. What is not acceptable is having someone else do your work for you. This includes tutors, classmates, friends, family members, and online “homework help” sites. If someone else is doing your work for you, whether or not you’re paying them, you are committing an academic offence.

Penalties for academic dishonesty are outlined in the Academic Calendar<sup>1</sup>. Depending on the severity of the offence, penalties for a first offence can range from a grade of zero on an assessment, to an F in the courses. Academic offences are also reported to the Dean of Arts & Sciences. They keep a record of each offence, and students with multiple offences can be subject to supplementary discipline.

5. *I missed a test! What do I do? Do I get a zero?*

I will try to make alternate arrangements for any in class assessments you’re unable to do in person. Just make sure you contact me ASAP to sort things out.

6. *Do I need a doctor’s note?*

No. This wastes health care resources and your time. (That was my answer before the pandemic, and it’s doubly so now.) Just email me to say you were sick. However, if you miss more than one test due to illness, we’ll need to meet to discuss how to adjust your grade.

7. *I receive learning accommodations. What arrangements can I make?*

First, make sure that you have registered with the University’s Accommodated Learning Centre<sup>2</sup>. No need to let me know: they notify me of every student with accommodations.

Some accommodations will look a bit different this year, but exam accommodations such as extra time are still possible.

If there are any adjustments I can make to facilitate your learning, please do not hesitate to get in touch with me. All students deserve an equal opportunity to learn. Note that the HTML textbook is designed with accessibility in mind, and should work with screen readers. However, I regret that we have not had the time (or paid help) necessary to add elements such as alt-text descriptions for images. It’s on the to-do list, but that list is long, and growing.

8. *Life intervened and I can’t keep up this week. What do I do?*

Send me an email. Extensions are usually granted as long as they’re granted ahead of time. Online homework extensions need to be in place before solutions become available. Book an appointment with me as soon as you feel like you’re falling behind and I’ll do my best to get you up to speed.

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<sup>1</sup>[www.uleth.ca/policy/resources/student-discipline-policy-academic-offences-undergraduate-students](http://www.uleth.ca/policy/resources/student-discipline-policy-academic-offences-undergraduate-students)

<sup>2</sup>[www.uleth.ca/ross/accommodated-learning-centre](http://www.uleth.ca/ross/accommodated-learning-centre)