MATH 209
Fundamental Mathematics II
Section EC
Winter 2026

This syllabus is subject to change and any changes will be posted in the Announcements section of your eConcordia course website.

Disclaimer: In the event of extraordinary circumstances, and pursuant to Academic Regulations, the University may modify the delivery, content, structure, form, location and/or evaluation scheme of this course. In the event of such extraordinary circumstances, students will be informed of the change.

About Academic Integrity

Concordia University places the principle of academic integrity, that is, honesty, responsibility and fairness in all aspects of academic life, as one of its highest values.

Academic offenses to Concordia's Code of Academic Conduct include plagiarism and unauthorized collaboration. It is your responsibility to understand what these are and the possible consequences of a charge being upheld against you. You are not authorized to collaborate with others in the resolution of any of the course assessments, not to use AI or any other software to assist in the resolution of the course assessments.

Behaviour

All individuals participating in courses are expected to be professional and constructive throughout the course, including in their communications.

Concordia students are subject to the Code of Rights and Responsibilities which applies both when students are physically and virtually engaged in any University activity, including classes, seminars, meetings, etc. Students engaged in University activities must respect this Code when engaging with any members of the Concordia community, including faculty, staff, and students, whether such interactions are verbal or in writing, face to face or online/virtual. Failing to comply with the Code may result in charges and sanctions, as outlined in the Code.

About the Course

What is MATH 209?

MATH 209 is a course offered by the Department of Mathematics and Statistics in which students will learn the concepts of differential calculus (limits, the derivative, differentials) and be introduced to certain topics of integral calculus (antiderivatives, the definite integral, integration by substitution). Business-specific applications of these mathematical concepts feature heavily in the course.

Instructor

Thomas Hughes

E-mail: math209@econcordia.com

You can e-mail your instructor if you have inquiries (general, or regarding assignments and exams), or if there is a delay in hearing back from your Teaching Assistant (TA). Please include the following information in all of your e-mail communications:

- Full name
- Concordia student ID number
- Course number pertaining to your inquiry (i.e. MATH 209)

Course Material

The learning material for this course, as well as links to the assignments, and the midterm tests are all located on the course website, which is accessible through the eConcordia website: www.econcordia.com.

Note: No learning material will be posted on the *Concordia Moodle* page for MATH 209.

Your eConcordia account will be valid until the end of the term for which you are registered.

Course Website

To access the MATH 209 course website, log in at www.econcordia.com and find MATH 209 in your *My Courses* list. On your eConcordia homepage you will see a link called *Course Website*. Clicking on that link will take you to the eConcordia Moodle page that contains the learning material for this course.

Textbook

An online version of the textbook *Calculus for Business, Economics, Life Sciences, and Social Sciences* by Barnett, Ziegler, and Byleen, is accessible for free from the **READINGS** section of each lesson within the course website.

Readings from this textbook are also part of each lesson, and the specific textbook sections to be read are found in each lesson's **READINGS** section.

Lesson Structure

The course website, containing the learning material is divided into the following lessons, with "Lesson 1" dedicated to Getting Started, and the "Lesson 12" no longer being required:

- **Lesson 1:** Getting Started
- **Lesson 2:** Limits and Continuity
- **Lesson 3:** Derivatives and Differentials
- **Lesson 4:** Marginal Analysis
- **Lesson 5:** Derivatives of Exponentials and Logarithms
- **Lesson 6:** Techniques of Differentiation
- **Lesson 7:** Related Rates and Elasticity of Demand
- **Lesson 8:** First Derivatives and Graphs
- **Lesson 9:** Second Derivatives and Graphs
- **Lesson 10:** Calculus and Optimization
- **Lesson 11:** Antiderivatives and Indefinite Integrals
- ~~***Lesson 12:*** *Differential Equations and Exponential Growth*~~

- **Lesson 13:** Limits and Definite Integrals

Within each lesson you will find:

- A video that explains the **LEARNING OBJECTIVES** of the lesson
- A list of **READINGS** from the course textbook
- The **STUDY TOOLS** in the form of notes and exercises
- A **SELF ASSESSMENT** to put into practice what you have learned

The following table shows which sections of the textbook correspond to each lesson.

Lesson	Title	Textbook Section(s)
1	Getting Started	N/A
2	Limits and Continuity	2.1 – Introduction to Limits 2.2 – Infinite Limits 2.3 – Continuity
3	Derivatives and Differentials	2.4 – The Derivative 2.5 – Basic Differentiation 2.6 – Differentials
4	Marginal Analysis	2.7 – Marginal Analysis in Business
5	Derivatives of Exponentials and Logarithms	3.1 – Review of the Constant *e* and Continuous Compound Interest 3.2 – Derivatives of Exponential and Logarithmic Functions
6	Techniques of Differentiation	3.3 – Derivatives of Products and Quotients 3.4 – The Chain Rule 3.5 – Implicit Differentiation
7	Related Rates and Elasticity of Demand	3.6 – Related Rates 3.7 – Elasticity of Demand
8	First Derivatives and Graphs	4.1 – First Derivative and Graphs
9	Second Derivatives and Graphs	4.2 – Second Derivative and Graphs 4.4 – Curve Sketching Techniques
10	Calculus and Optimization	4.5 – Absolute Maxima and Minima 4.6 – Optimization
11	Antiderivatives and Indefinite Integrals	5.1 – Antiderivatives 5.2 – Integration by Substitution
~~12~~	~~Differential Equations and Exponential Growth~~	*This topic is no longer part of this course*
13	Limits and Definite Integrals	5.4 – The Definite Integral 5.5 – Fundamental Theorem of Calculus 5.6 – Area Between Curves

eConcordia Moodle Page

Additional notes and exercises for each lesson may be posted on the MATH 209 **eConcordia Moodle** page. A link to the MATH 209 **eConcordia Moodle** page is located on your eConcordia homepage.

Assessments

The graded assessments for this course are:

- Ten (10) online **Assignments**, on the platform MyLab Math
- Two (2) **Midterm Tests**, on the platform MyLab Math
- The **Final Exam**, in-person, on campus

MyLab Math

MyLab Math is an online homework and testing platform created by the textbook publisher Pearson.

The link to access MyLab Math for this course is on the home page of the Course Website.

It is your responsibility to follow each question's instructions and to ensure that the format of your answers is correct according to the standards of MyLab Math.

For more information, see the section titled "Warning About Math Notation" in this course outline.

Assignments

There will be 10 assignments to be completed on the online platform **MyLab Math** (see above).

You will have about two weeks to complete each assignment. An assignment will open at the beginning of each week, the same day as a new lesson, and will close about two weeks later.

The due dates of all assignments are listed in the **Agenda** at the end of this course outline.

Since the lesson titled "Getting Started" is listed as "Lesson 1", the numbering of the assignments and the lessons they relate to is as follows:

- Assignment #1: Lessons 2 and 3
- Assignment #2: Lessons 3 and 4
- Assignment #3: Lessons 4 and 5
- Assignment #4: Lessons 5 and 6
- Assignment #5: Lessons 6 and 7
- Assignment #6: Lessons 7 and 8
- Assignment #7: Lessons 8 and 9
- Assignment #8: Lessons 9 and 10
- Assignment #9: Lessons 10 and 11
- Assignment #10: Lessons 11 and 13 *("Lesson 12" is no longer part of this course)*

There will be no accepted reason for missing an assignment (including illness or computer issues).

Midterm Tests

The two Midterm Tests will be done **online**:

- Midterm Test 1 will cover **Lessons 1 to 4** and will take place on **Sunday February 22**
- Midterm Test 2 will cover **Lessons 5 to 8** and will take place on **Sunday March 29**

The Midterm Tests will be done on the online platform MyLab Math.

Each test will be accessible from 9:00 AM to 11:59 PM (ET) on the day of the test.

Once you begin, you will have 60 minutes to complete the test, **or until it closes** at 11:59 PM (ET), whichever comes first.

You will need a calculator, and pen & paper to work out the answers.

Notes:

- If you encounter a **technical problem** while accessing the midterm test, record the time, note the webpage, and provide a brief description of the incident by e-mail to your TA and instructor immediately.

- It is the Department's policy that tests missed for any reason cannot be made up. If you miss either midterm test due to a legitimate reason (e.g., illness, death of a family member), the weight of the missed test will be shifted onto the final exam. In such cases, a medical note or certificate must be sent to your instructor **as soon as possible**.

Students registered with Concordia's Access Centre for Students with Disabilities (ACSD) will have the duration of their midterm tests automatically adjusted.

Final Exam

The Final Examination will be held **in-person**. The exam will cover all of the material in the course (from **Lessons 2 to 13**) and will have a duration of 3 hours.

The date and time of the final exam is set by the Examinations Office and will be posted in your Student Hub. You are responsible for finding out the date and time of the final exam once the schedule is posted by the Examinations Office. Conflicts or problems with the scheduling of the final exam must be reported directly to the Examinations Office, not to your instructor.

Note: To pass MATH 209 EC, you must receive a minimum score of 50% on the final exam.

Calculators

Only calculators approved by the Department (with a sticker attached as a proof of approval) are permitted for the final exam. For a list of Approved calculators, see: www.concordia.ca/artsci/math-stats/services.html

Evaluation Scheme

Your final grade will be calculated using the following evaluation scheme:

- Assignments 10%
- Midterm Test 1 10%
- Midterm Test 2 10%
- Final Exam* 70%

* **Note: To pass MATH 209 EC, you must receive a minimum score of 50% on the final exam.**

Letter Grades

The following table shows the percentage to letter grade conversion for MATH 209 EC:

Letter	**A+**	**A**	**A-**	**B+**	**B**	**B-**	
% Score	90-100	85-89	80-84	77-79	73-76	70-72	
Letter	**C+**	**C**	**C-**	**D+**	**D**	**D-**	**F**
% Score	67-69	63-66	60-62	57-59	53-56	50-52	<50

Your final letter grade for the course will be posted in your Student Hub at the end of the term.

Warning About Math Notation

Learning with technology has many advantages. But it also requires more attention to detail. In particular, the answers to some questions on MyLab Math may only be graded as "correct" if they are entered in the correct format.

For example, most mathematical systems (including MyLab Math) will require that fractions be written in "reduced form", by dividing out factors that are common to the numerator and denominator. Depending on the context, **and the question's instructions**, a fraction such as $\frac{12}{24}$ will need to be reduced to $\frac{1}{2}$, and writing $\frac{12}{24}$ as an answer may be marked as incorrect.

Similarly, the fraction $\frac{24}{12}$ will need to be reduced to 2, and $\frac{24}{12}$ may be marked as incorrect.

Another frequently encountered situation involves numbers with currency units (dollars and cents). Such numbers are expected to be accurate to two decimal places. For example, writing \$12.354 or \$12.357 as answers in a finance problem may be marked as incorrect, since the system is expecting \$12.35 (instead of \$12.354) and \$12.36 (instead of \$12.357).

Be sure to always read and follow the instructions for every question.

Academic Support

Teaching Assistants

Due to the large number of students enrolled in this course, you will be assigned a Teaching Assistant (TA) by week 3. Their names and contact info (email address) will be posted on your eConcordia course website when you log in.

TAs will help you understand the course content by answering your questions on the Discussion Board, or during their online Office Hours (see below). Note that your TA is not responsible for helping you with technical issues.

Please include the following information in all of your e-mail communications with your TA:

- Full name
- Concordia student ID number
- Course number pertaining to your inquiry (i.e. MATH 209)

Please allow for a 24-hour response time during the week (Monday-Friday). TAs check their messages once over a 48-hour weekend period, and are not available on statutory or university holidays.

Save a copy of all e-mail correspondence for the duration of the term and until you have received your final letter grade for the course.

You are expected to be polite at all times. Communications that do not meet this requirement will not be answered.

Discussion Board

As of 2:00 PM on the first day of class, a Discussion Board will be activated and accessible from the *Discussion Board* link on the eConcordia course website.

The Discussion Board is the ideal place for you to ask questions about the course material. While the TAs and instructor are responsible for answering questions, **all students** are encouraged to read and answer the posted questions.

Here are some guidelines to follow for posting on the Discussion Board:

- Do not post any personal information on the discussion board.
- Keep all posts and questions pertinent to the course material.
- Questions about grades or questions of a personal nature must be addressed directly to your TA or instructor.
- You can ask or answer questions about the concepts taught in the course, the self-assessments, the textbook, examples from videos, or even using your calculator.

- **Do not ask others to solve your assignment problems for you,** though asking for a hint or help getting started is acceptable.
- Read the other postings to confirm that your question has not already been asked and answered.
- Be respectful. Refrain from making offensive statements and derogatory comments.
- Students who fail to respect these rules will be asked to leave the discussion. It is within our discretion and authority to remove or edit any posting at any time.

Note: The Discussion Board will be closed on the day of the midterm test.

If a question that you posted on the Discussion Board does not get answered or resolved in a timely manner, please e-mail your TA or instructor.

Office Hours

In fairness to students who live out-of-town, the instructor and the TAs have no *in-person* office hours.

Your TA and your instructor will each provide a minimum of one online office hour each week via Zoom. The day and time of their office hours, and the link to join the Zoom meeting, will be posted under **Virtual Office Hours** on your eConcordia course website.

Announcements

The Announcements are the instructor's means of communicating important updates to you on a regular basis. Please keep up to date by reading the announcements on a weekly basis. The announcements are located on your eConcordia course website.

To receive announcements in your email inbox, click on *My Profile -> Edit Profile* on the eConcordia homepage, select the box next to ***I would like to receive course announcements by email*** (below your personal information), and click **Update**.

Math Help Centre

The Department of Mathematics and Statistics has a free Math Help Centre for students enrolled in MATH 209 where you can ask a tutor for one-on-one help. The tutors at the Math Help Centre are graduate students in mathematics who will help you with particular questions, explain things to you, and give you hints and insight. Its schedule of operation will be posted by Week 2 in the Department and on the Department webpage: https://www.concordia.ca/artsci/math-stats/services/math-help-centre.html

Student Success Centre

Concordia University's Success Centre (https://www.concordia.ca/students/success.html) offers a variety of resources to students. Visit https://www.concordia.ca/students/success/learning-support/math-help.html to learn about available resources.

To book an appointment for one-on-one tutoring for MATH 209, you can go to: https://www.concordia.ca/students/success/learning-support/math-help.html#tutoring

Study Habits

To succeed in an online course, good study habits are essential. A learner who is motivated, self-disciplined, and has good organizational skills will be able to progress normally in the course. Here are some tips to help you succeed:

- Set aside some specific days and times to work on the course.
  On average, a student should spend **six hours per lesson** in MATH 209. This time should be spent reading (and re-reading) the study materials in the textbook, working on the self-assessment, and completing the assignments.
  Note that six hours is an estimate only and should be adjusted based on your ability to learn the material. More time will be needed to study for the midterms and final exam.
- Complete your work early in the week so that you have time to write and post pertinent questions on the Discussion Board, or to ask your TA or instructor during their Office Hours.
- Do NOT wait until the last day before a deadline to complete an assessment. Use the agenda to help you plan ahead.
- As you work through each lesson, write down the important formulas and procedures that you learn. This will keep you alert while you read through the course material, and it will also make it easier for you to study for the exams.

Technical Help and Support

eConcordia Help Desk

If you experience any technical problems with the eConcordia website, please contact the **eConcordia HelpDesk**:

- **E-mail**: helpdesk@econcordia.com

The Help Desk is open Monday to Friday from 9:00 AM to 5:00 PM ET.

The necessary technical requirements to ensure the eConcordia course website works properly can be found here: Technical Requirements. The recommended web browsers are Google Chrome on PC, and Safari and Google Chrome on Mac devices.

MyLab Math Support

If you are experience problems accessing MyLab Math from the eConcordia website, try using a different web browser, or try the following steps:

- Clear your browser's cache: https://support.pearson.com/getsupport/s/article/Deleting-Browser-Cached-Files-and-Cookies
- Verify if your browser settings are configured correctly for MyLab Math: https://support.pearson.com/getsupport/s/article/Browser-Settings

Other Important Information and Useful Links

Topic	Link
Academic Integrity	Academic Integrity
Educational Technology Guidelines	Concordia Educational Technology Guidelines for Faculty and Students (the "Guidelines")
Access Centre for Students with Disabilities	ACSD
Concordia Library Citation & Style Guides	How to cite...
Course Communication Tools	Communication
eConcordia Policies	Policies
Final Exams Information	Final Exams
Helpdesk/Support	FAQ
Multifactor Authentication	MFA for Students
Refunds	Refunds
Technical Requirements	Technical Requirements
Tips for Studying Online	Studying Tips
Tips on how to reach online learning goals (learning modules)	How to Succeed @ eConcordia

Third-Party Software and Websites

Here is an excerpt on Concordia's policy on educational software or services developed and owned by third parties, including those linked to textbooks, in-class surveys, lecture capture, virtual classrooms, course assignments and quizzes can be invaluable tools for the development and teaching of courses.

Third-party software/websites that require personal information (name, email, student number, etc.)

Students are advised that external software and/or websites will be used in the course, and that students may be asked to submit or consent to the submission of personal information (for example, name and email) to register for an online service. Students are responsible for reading and deciding whether or not to agree to any applicable terms of use. Use of this software and service is voluntary. Students who do not consent to the use the software or service should identify themselves to the course instructor as soon as possible, and in all cases before the DNE deadline, to discuss alternate modes of participation.

Third-party software/websites for work submission

Students are advised that external software and/or websites will be used in the course and that students may be asked to submit or consent to the submission of their work to an online service. Students are responsible for reading and deciding whether or not to agree to any applicable terms of use. Use of this software and service is voluntary. Students who do not consent to the use the software or service should identify themselves to the course instructor as soon as possible to discuss alternate modes of participation that do not require them to give copyright or the right to use their work to a third party.

By using the external software or websites, students agree to provide and share their work and certain personal information (where applicable) with the website/software provider. Students are advised that the University cannot guarantee the protection of intellectual property rights or personal information provided to any website or software company. Intellectual property and personal information held in foreign jurisdictions are subject to the laws of such jurisdictions.

Third-party technology to record a course

Note that, as a part of this course, some or all of the lectures and/or other activities in this course may be recorded. Recordings will be focused on the instructor and will normally exclude students. It is possible, however, that your participation may be recorded. If you wish to ensure that your image is not recorded, speak to your instructor as soon as possible.

You are not permitted to share recordings of your classes. The instructor will only share class recordings for the purpose of course delivery and development. Any other sharing may be in violation of the law and applicable University policies, and may be subject to penalties.

Tutorial Companies

Please note that private tutorial companies, some of whom aggressively promote their services on and off campus, are not authorized by Concordia University to distribute flyers on university premises and may not use Concordia University facilities to promote or provide their services.

Concordia University and its academic departments do not have any affiliation with these companies even though names such as JMSB, Concordia, or references to specific departments often appear in a visible way. If you are interested in the University's approved tutoring services, consult the services listed in your course outline or other services listed on the University's website.

ChatGPT and similar generative AI products

Chat GPT is a predictive text-generating artificial intelligence (AI). While it may prove useful in certain circumstances, it is not designed and is not intended to solve mathematical problems. In many cases, when prompted to solve a mathematical problem, Chat GPT will fail to provide a structured and sound mathematical answer.

For this reason, the use in this course of generative artificial intelligence tools or apps (including tools like ChatGPT and other AI writing or coding assistants) for assignments, and midterm tests is prohibited.

MATH 209 - Fundamental Mathematics II
Agenda
Winter 2026

All deadlines indicated are on the due date listed by 11:59 PM unless otherwise indicated.

Week 1: January 12 – January 18	
	Read Course Outline
	Lesson 1: Work through the Getting Started Lesson
January 12	**Classes begin**
January 12	**Discussion Board opens at 2 PM**
Week 2: January 19 – January 25	
	Lesson 2: Limits and Continuity
Week 3: January 26 - February 1	
	Lesson 3: Derivatives and Differentials
January 26	**Deadline to add winter-term courses**
January 26	**Deadline for withdrawal with tuition refund (DNE) from winter-term courses**
Week 4: February 2 – February 8	
	Lesson 4: Marginal Analysis
February 4	**Assignment #1 (Lessons 2 and 3) due at 11:59 PM**
Week 5: February 9 – February 15	
	Lesson 5: Derivatives of Exponentials and Logarithms
February 11	**Assignment #2 (Lessons 3 and 4) due at 11:59 PM**
Week 6: February 16 – February 22	
	Lesson 6: Techniques of Differentiation
February 18	**Assignment #3 (Lessons 4 and 5) due at 11:59 PM**
February 22	**Midterm Test 1 (Lessons 1 – 4), 9:00 AM to 11:59 PM**
Week 7: February 23 – March 1	
	Lesson 7: Related Rates and Elasticity of Demand
February 25	**Assignment #4 (Lessons 5 and 6) due at 11:59 PM**

February 27	**Last day to submit required documentation to register with the Access Centre for Students with Disabilities and request exam accommodations for the Winter 2026 final examination period**
Mid-Term Break: March 2 – March 8	
March 2	**Reading week begins**
March 6	**President's Holiday – University Closed**
March 8	**Reading week ends**
Week 8: March 9 – March 15	
	Lesson 8: First Derivatives and Graphs
March 11	**Assignment #5 (Lessons 6 and 7) due at 11:59 PM**
Week 9: March 16 – March 22	
	Lesson 9: Second Derivatives and Graphs
March 18	**Assignment #6 (Lessons 7 and 8) due at 11:59 PM**
Week 10: March 23 – March 29	
	Lesson 10: Calculus and Optimization
March 23	**Last day for academic withdrawal (DISC) from winter-term courses**
March 25	**Assignment #7 (Lessons 8 and 9) due at 11:59 PM**
March 29	**Midterm Test 2 (Lessons 5 – 8), 9:00 AM to 11:59 PM**
Week 11: March 30 – April 5	
	Lesson 11: Antiderivatives and Indefinite Integrals
April 1	**Assignment #8 (Lessons 9 and 10) due at 11:59 PM**
April 3	**University Closed**
April 4	**University Closed**
April 5	**University Closed**
Week 12: April 6 – April 13	
	Lesson 13: Limits and Definite Integrals *("Lesson 12" is no longer part of this course)*
April 6	**University Closed**
April 7	**Last day for instructor-scheduled tests or examinations**
April 8	**Assignment #9 (Lessons 10 and 11) due at 11:59 PM**
April 13	**Last day of classes, winter term**
April 13	**Assignment #10 (Lessons 11 and 13) due at 11:59 PM**

Examination Period: April 16 – April 30	
	Final Exam date, time and location is posted on your Student Hub