



$$\cos 2\alpha = \cos^2 \alpha - \sin^2 \alpha = 2\cos^2 \alpha - 1 = 1 - 2\sin^2 \alpha$$

$$\frac{1 + \sin \alpha}{1 - \sin \alpha} = \frac{1 + \sin \alpha}{1 - \sin \alpha} \cdot \frac{1 + \sin \alpha}{1 + \sin \alpha} = \frac{(1 + \sin \alpha)^2}{1 - \sin^2 \alpha} = \frac{(1 + \sin \alpha)^2}{\cos^2 \alpha} = \frac{1 + \sin \alpha}{\cos \alpha}$$

# MATH 200

## Fundamental Concepts of Algebra

### Section EC

### Winter 2020

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

**Disclaimer:** In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

## About the Course

This is a course offered by the Department of Mathematics and Statistics. It is intended to give students an introduction to the fundamentals of algebra.

*NOTE: Students who have received credit or exemption for a course at the level of MATH 201 or above may not take this course for credit.*

*NOTE: Students in programs leading to the BSc degree or the BA programs in Mathematics and Statistics may not take this course for credit to be applied to their program of concentration.*

## Instructor and Teaching Assistants (TA)

**Instructor:** David Pearce

**Instructor Contact Information:** [math200@econcordia.com](mailto:math200@econcordia.com)

This email address allows you to contact the instructor directly if you have any questions or concerns about the general nature of the course, or if there is a delay in hearing back from your TA.

**Office hours:** The instructor and Teaching Assistants do not have office hours for this course. All communication will be done through email, Announcements on your eConcordia homepage, or posts on the Discussion Board (see **Discussion Board** below).

**Teaching Assistant (TA) Contact Information:** Due to the large number of students enrolled in this course, you will be assigned a Teaching Assistant (TA). Their contact info (email address) will be posted on your eConcordia homepage.

Your TA is your first point of contact for discussing the mathematical content of the course. Questions about lesson material must be posted in the appropriate folder on the Discussion Board (see **Discussion Board** below). **Questions about the quizzes and midterm should be sent to your TA by email.**

**DO NOT POST QUESTIONS ABOUT THE QUIZZES OR MIDTERM TEST ON THE DISCUSSION BOARD.** Doing so is considered cheating and a violation of the University's Academic Code of Conduct (see the *Academic Integrity* link in **Important Information – Useful Links** below). Students who share information about quizzes or the midterm on the discussion board – or by any other means – may be subject to academic discipline.

Allow for a 24-hour response time from your TA during the week (Monday-Friday). Teaching Assistants check their messages once over the 48-hour weekend period and are not available on statutory or university holidays.

Include your full name and student ID in email messages to the instructor or TA. This will enable us to easily identify you on the class list and grade sheet and promptly reply to your questions.

## Course Description

This course teaches the fundamental concepts of algebra including:

- Performing arithmetic operations with algebraic expressions
- Simplifying algebraic expressions
- Factoring algebraic expressions
- Solving linear and quadratic equations
- Solving linear inequalities
- Graphing equations in two variables
- Solving systems of linear equations in two variables
- Simplifying rational expressions
- Solving rational equations

## Course Material

There is no Moodle page for this course. The entire course content is available only on eConcordia ([www.econcordia.com](http://www.econcordia.com)).

The course is made up of 12 lessons which can all be found by clicking on the *Course Website* link on the eConcordia home page. Lesson 13 contains videos on remedial material, and will not be covered on the final exam.

Each lesson contains:

**Lecture videos:** There is one video for each topic of the course. The videos are meant to simulate a class lecture. There are also videos that show you how to solve additional example problems. The videos cannot be downloaded or viewed offline.

**Self-assessment question:** At the end of each lesson there is a 10-question self-assessment for you to practice that lesson's content. The self-assessments can be attempted as often as necessary. Detailed solutions are provided for every question.

**Additional problems and learning resources:** Additional practice problems and external resources for each lesson will be posted on the Discussion Board regularly throughout the term.

**Quiz:** The lessons conclude with a 10-question quiz which can only be attempted once. The quizzes count towards your final grade. More details are provided in the **Assessments** section below.

## Textbook

There is no required textbook for this course. Suggested reading material and additional resources will be posted in the Announcements and on the Discussion Board throughout the term.

## Access to the Course Website

Your eConcordia account will be valid until the end of the term for which you are registered. Your account will allow you to access the online course material (videos, self-assessments, Discussion Board, graded assessments, and additional resources) on the course website for the duration of the term.

To access the course website, log in at [www.econcordia.com](http://www.econcordia.com) and find MATH 200 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 page that contains all of the course material.

## Announcements

The Announcements section of the course website is our means of communicating important changes and updates to you on a regular basis. Please ensure that you keep up to date by reading the announcements on a weekly basis. The announcements are found in the centre of your eConcordia homepage.

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

## Discussion Board

Questions about specific course content must be posted in the appropriate lesson folder on the Discussion Board, which is accessible by clicking the *Discussion Board* link on your eConcordia homepage.

Posting on the Discussion Board is like raising your hand in class. You can ask for clarification or guidance on solving a problem. The TA's are responsible for answering your questions; the instructor will monitor and moderate discussions. Students are welcome and encouraged to answer their classmates' questions as well.

**DO NOT POST QUESTIONS FROM THE QUIZZES OR MIDTERM TEST ON THE DISCUSSION BOARD.** Doing so is considered cheating and a violation of the University's Academic Code of Conduct (see the *Academic Integrity* link in **Important Information – Useful Links** below). Students who share information about quizzes or the midterm on the discussion board – or by any other means – may be subject to academic discipline.

**DO NOT POST YOUR STUDENT ID ON THE DISCUSSION BOARD.**

## Assessments

### Evaluation Scheme

**Quizzes** (taken online, one for each of the 12 lessons)

Can be done at any time\*, but can only be attempted **once**

Only the **best 10 out of 12** quizzes will count towards your final grade 10%

**Midterm** (taken online, covering Lessons 1 - 5) 20%

**Final Exam** (written on campus; covering Lessons 1 - 12)

Date, time and location will be posted in your **MyConcordia portal** 70%

\* see *Description of Graded Assessments – Quizzes* below for exceptions

### Description of Graded Assessments

#### Quizzes

Each lesson's quiz will contain 10 questions randomly selected from a question bank with different levels of difficulty (equally chosen from easy, medium, and challenging questions). The questions will either be multiple-choice, or "fill-in-the-blanks". The multiple-choice questions may have more than one correct answer.

Before you start each quiz, you will be shown a page containing the instructions. Read them carefully. These instructions include the following important points:

- You have **one** attempt to complete the quiz. If you close the browser window after you start the quiz, you will lose your attempt.
- To complete a quiz, **you must submit an answer for each question**. Closing your web browser window before doing so will invalidate your quiz and you will lose your attempt.
- You have **two (2)** attempts to answer each question. In cases where there is more than one correct answer, you must select **all** correct answers to receive full marks. Selecting only some of the correct answers will result in a score of 0 for that question.
- If you are having trouble with a question, you can skip it in 1 of 2 ways:
  1. Leave the answer field blank and press *Submit*, then select *Postpone* from the pop-up window that appears. The questions that you postpone will reappear once you have completed the other questions.
  2. Use the drop-down menu in the top left corner of the window to select a specific question.
- You can answer the questions in any order that you wish, but you must answer all of them to receive your score.
- When you finish a quiz, **print the results** to confirm your grade. In case you experience a technical problem and your grade is not recorded, a print-out of your results will be adequate proof to adjust your grade.
- Once you receive your score you will have **one chance to review** your answers. When you close the quiz window, you will no longer be allowed to return to the quiz. Therefore, if you want to review any questions later, write them down **before** exiting the quiz.

Only the results of your **best 10 of the 12** quizzes will count toward your final grade.

**There will be no accepted reason for missing a quiz.** For example, if you were sick or if your computer crashed, that will be considered one of the two quizzes that will not be counted toward your final grade. So, complete every quiz! A doctor's note will not be considered as a reason for missing a quiz because the two lowest of them will not be counted anyway.

Access to the quizzes for **lessons 1 through 5** will be open from the beginning of the term, and will **close at 11:59 pm on Tuesday March 3 (the day before the Midterm)**.

Access to the quizzes for **lessons 6 through 12** will only be **open after the Midterm**, and will **close at 11:59 pm on Thursday April 9 (the last day of class)**.

**DO NOT TAKE THE QUIZZES ON A MOBILE DEVICE (cell phone or tablet).** Use a PC or laptop (see the *Technical Requirements* link in **Important Information – Useful Links** below).

## Midterm

The midterm will consist of 10 multiple-choice questions on the content of lessons 1 to 5 only.

The midterm is accessible any time between 12:01 am and 11:59 pm on **Wednesday March 4, 2020**.

When you begin the midterm, a timer will begin to count down. Once activated, you will have to complete the midterm in the allotted time of **1 hour and 30 minutes**, regardless of what time you start. If you close the webpage before completing the midterm you will not be able to reactivate the exam and will receive a grade of zero.

All 10 questions will appear on the same webpage. **DO NOT RELOAD THE WEBPAGE!** Each question will have four options, more than one of which may be correct. Select the correct answer(s) by clicking on the box next to it. A checkmark will appear in the box indicating that you've selected it. You can select and un-select your answers as often as you'd like.

Once you have selected answers to all ten questions, click the "SUBMIT" button at the bottom of the page. This will end the test. Unlike the quizzes, there are no second attempts. When the test is submitted, it is finished.

When you finish the midterm, print the results to confirm your grade.

Only a medical note clearly stating the reason for absence may be accepted as an excuse for missing the midterm. In such a case, the final exam will count for 90% of the final grade.

**DO NOT TAKE THE MIDTERM ON A MOBILE DEVICE (cell phone or tablet).** Use a PC or laptop (see the *Technical Requirements* link in **Important Information – Useful Links** below), and make sure you are using a stable internet connection that you use regularly (at your home, in your office, or at Concordia).

## Final Exam

The final exam is written on campus with pencil or pen, not online.

**To pass this course, you must receive a minimum score of 50% on the final exam.**

The date and time of the final exam is announced by the University on the MyConcordia portal. Please note that **travel conflicts are never accommodated** so it is strongly advised that you **wait to make any travel plans** until the date and time of the final exam are released.

You must bring your student ID card to enter the final exam room.

Memory aids and cheat sheets are not permitted for any 200-level mathematics course.

Only calculators approved by the Mathematics Department such as the **Sharp EL 531** or the **Casio FX 300MS** (available at the Concordia Bookstore) will be permitted for the final

examination. If your calculator does not have the "ENCS" sticker on it as a proof of approval, it will be taken away from you during the final exam.

For the complete list of approved calculators, the list of non-approved calculators, and to find out how to get the ENCS sticker of approval, read the information at the following link:

<http://www.concordia.ca/artsci/math-stats/services.html#calculators>

## Grades

Your grades can be viewed by click on the *My Grades* link on your eConcordia homepage.

It is your responsibility to ensure your quiz and midterm results have been properly recorded by eConcordia, and to contact the instructor via e-mail if you have any questions concerning your grades.

**PRINT YOUR QUIZ AND MIDTERM RESULTS** as a means of confirming your grades. In case you experience a technical problem and your grade is not recorded, a print-out of your results will be adequate proof to adjust your grade.

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

## Grade Distribution

Letter Grade	Percentage (%)	Letter Grade	Percentage (%)
A+	90 to 100	C	64 to 66
A	85 to 89	C-	60 to 63
A-	80 to 84	D+	57 to 59
B+	77 to 79	D	54 to 56
B	74 to 76	D-	50 to 53
B-	70 to 73	F	Less than 50
C+	67 to 69		

## Technical Help and Support

### eConcordia HelpDesk

If you experience any technical problems with the website (including videos not playing, quiz or midterm questions not loading properly, etc.) contact the **eConcordia HelpDesk** immediately:

E-mail: [helpdesk@concordia.com](mailto:helpdesk@concordia.com)

**Phone:** (514) 848-8770, open Monday to Friday from 9:00 am to 5:00 pm Eastern time.

The necessary technical requirements to ensure that the course website works properly can be found here: [Technical Requirements](#). The recommend web browsers are Google Chrome and Mozilla Firefox on PC, and Safari and Google Chrome on Mac devices. An up-to-date Adobe Flash Player is also necessary.

**DO NOT USE A MOBILE DEVICE (CELL PHONE OR TABLET) FOR THE QUIZZES OR MIDTERM.**

## **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 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 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.

Also, please note that you may not share recordings of your classes and that 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.

## Important Information

### Useful Links

Topic	Link
Academic Integrity	<a href="#">Academic Integrity</a>
Educational Technology Guidelines	<a href="#">Educational software or services developed and owned by third parties</a>
Access Centre for Students with Disabilities	<a href="#">ACSD</a>
Concordia Library Citation & Style Guides	<a href="#">Citing - Help &amp; How-to</a>
Course Communication Tools	<a href="#">Communication</a>
eConcordia Policies	<a href="#">Policies</a>
Final Exams Information	<a href="#">Final Exams</a>
Helpdesk/Support	<a href="#">FAQ</a>
Refunds	<a href="#">Refunds</a>
Technical Requirements	<a href="#">Technical Requirements</a>
Tips for Studying Online	<a href="#">Studying Tips</a>

### Calculators

Only calculators approved by the Mathematics Department (with a sticker attached as a proof of approval), such as the **Sharp EL 531** or the **Casio FX 300MS** (available at the Concordia Bookstore) will be permitted for the final examination. If your calculator does not have the "ENCS" sticker on it, it will be taken away from you during the final exam.

For the complete list of approved calculators, the list of non-approved calculators, and to find out how to get a sticker for your calculator, read the information at the following link:

<http://www.concordia.ca/artsci/math-stats/services.html#calculators>

## Math Help Center and Suggestions for Additional Help

The Department of Mathematics and Statistics has a free Math Help Center for students enrolled in MATH 200 where you can ask a tutor there for one-on-one help. The tutors at the Math Help Center are graduate students in mathematics who will sit with you and help you with particular questions, explain things to you, and give you hints/insight.

The Math Help Center is located on the 9th Floor of the Library Building on the Downtown Campus, where the Math Department is located. The Math Help Center opens during the third week of the term, and the hours for the Winter 2020 semester are posted on the Math Department's website at the following link: <https://www.concordia.ca/artsci/math-stats/services/math-help-centre.html>

Concordia University's Success Centre offers one-on-one free tutoring for MATH 200. Appointments with a mathematics tutor can be booked through your MyConcordia portal. For more information visit <http://www.concordia.ca/students/success/learning-support/math-engineering-help.html>.

The Mathematics Department also has a list of available private tutors. You can find it on a shelf in the lobby of the math department (9th floor of the Library Building downtown). You may also contact the Undergraduate Program Assistant by email at: [ugrad.mathstat@concordia.ca](mailto:ugrad.mathstat@concordia.ca).

# Fundamental Concepts of Algebra Agenda Winter 2020

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

Week 1: January 6 - January 12	
	Read Course Outline
	Watch "INTRODUCTION VIDEO" on Course Website
	Lesson 13: Remedial Lessons (if necessary)
	Lesson 1: Fundamental Operations with Algebraic Expressions
<b>January 06</b>	<b>Classes Begin</b>
<b>January 06</b>	<b>Discussion Board opens at 2 PM.</b>
Week 2: January 13 - January 19	
	Lesson 1: Fundamental Operations with Algebraic Expressions (Continued)
Week 3: January 20 - January 26	
	Lesson 2: Linear Equations
<b>January 20</b>	<b>DNE Date: Academic withdrawal deadline (with tuition refund)</b>
<b>January 20</b>	<b>Last day to add or swap courses in this term</b>
Week 4: January 27 - February 2	
	Lesson 3: Formulae and Linear Equations in Two Variables
Week 5: February 3 - February 9	
	Lesson 4: Graphing Linear Equations in Two Variables
Week 6: February 10 - February 16	
	Lesson 5: Linear Inequalities
Week 7: February 17 - February 23	
	Lesson 6: Systems of Linear Equations
	Midterm tutorial session on Adobe Connect <b>Exact date TBA</b>
Mid-Term Break: February 24 - March 1	
<b>February 24</b>	<b>Mid-term break begins</b>
<b>February 28</b>	<b>President's Holiday - University closed</b>

<b>March 01</b>	<b>Mid-term break ends</b>
Week 8: March 2 - March 8	
	Lesson 7: Percentages, Ratios and Other Problems
<b>March 03</b>	Quizzes for lessons 1 through 5 CLOSE at 11:59 pm
<b>March 04</b>	<b>Midterm exam</b> – Open from 12:01 am until 11:59 pm Discussion Board closed all day
<b>March 05</b>	Quizzes for lessons 6 through 12 OPEN at 12:01 am
Week 9: March 9 - March 15	
	Lesson 8: Factoring Algebraic Expressions
Week 10: March 16 - March 22	
	Lesson 9: Exponents and Radicals
Week 11: March 23 - March 29	
	Lesson 10: Quadratic Equations
<b>March 23</b>	<b>DISC Date: Academic withdrawal deadline from winter-term courses (without tuition refund)</b>
Week 12: March 30 - April 5	
	Lesson 11: Rational Expressions
	<b>Course Evaluation released</b>
<b>April 02</b>	Last day for instructor-scheduled tests or examinations
Week 13: April 6 - April 12	
	Lesson 12: Rational Equations
	Review course material
	Final exam tutorial session on Adobe Connect - TBD <b>Exact time TBA</b>
<b>April 09</b>	Last day of classes
<b>April 09</b>	Quizzes for lessons 6 through 12 CLOSE at 11:59 pm
	Deadline to complete <b>the course evaluation</b>
<b>April 10</b>	<b>University closed</b>
<b>April 11</b>	<b>University closed</b>
<b>April 12</b>	<b>University closed</b>
Examinations Period: April 16 - May 3	
	Final Exam date, time and location is posted on your MyConcordia Portal