Department of Mathematics & Statistics
Concordia University

MATH 206
Algebra & Functions
Fall 2025

Instructor*: _____

Email: _____

Office Hours: _____

*Students should get the above information from their instructor during class time. The instructor is the person to contact should there be any questions about the course.

Textbook: C*ollege Algebra,* 11th Edition, by Michael Sullivan, Pearson Education, Inc.
The textbook will be available at:
https://www.bkstr.com/concordiastore/home
Note: Students should order textbooks as early as possible, especially for printed versions in case books are backordered or there are any shipping delays.

Note: This course is recommended to Psychology students as preparation for their statistics courses. MATH 200 or some previous exposure to Algebra is assumed in this course. For this reason, a placement test to help you determine if you are ready for Math 206 is included at the end of this outline. Please take it seriously and consult your instructor or an academic advisor if in doubt.

Office Hours: Your professor will announce her/his office hours during which she/he will be also available to give a reasonable amount of help. Note, however, that if you miss a class it is not reasonable to expect your professor to cover the missed material for you.

Tutorials: The material in this course requires a lot of practice. There is not enough class time to do all the examples and problems needed to learn the material thoroughly. The Department has therefore organized special tutorial sessions conducted every week to provide additional support to students outside the lecture room environment. These sessions are conducted by tutors who will help with solving problems on the topics learned in class that week, with particular emphasis on the material that students may have difficulties within this course. Students may attend either of the scheduled tutorials and are strongly encouraged to participate and be active at these problem-solving sessions. They are an important resource to help students succeed in this course.

Math Help Centre: A Math Help Centre staffed by graduate students is available. The schedule of its operation will be posted in the Department and on the Department webpage https://www.concordia.ca/artsci/math-stats/services/math-help-centre.html.

MyLabMath: Every student who buys a textbook will also receive an access code to an online system called **MyLabMath**. Once they have registered for **MyLabMath**, students can download the Pearson e-text 2.0 app so that they can access the textbook from their phone or tablet. The system provides you with a full electronic version of the text (an eBook) as well as many exercises and practice problems. Students will use this system to do online assignments (see **Assignments** below). Students are also strongly encouraged to use this resource to help with problems similar to assignment problems, and in areas where they need extra assistance. If you have an old **MyLabMath** account, please refer to the footnote* on page 3.

Assignments: Students are expected to submit assignments online using **MyLabMath**. Late assignments **will not** be accepted. Assignments contribute 10% to your final grade. Working regularly on the assignments is essential for success in this course. Students are also strongly encouraged to do as many problems as their time permits from the list of supplementary problems included in this outline.

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

Reading Week: No classes between October 11 and October 17, 2025.

Midterm Test: There will be one **midterm test,** based on the material of Weeks 1-6, which will contribute up to 30% to your final grade (see the **Grading Scheme** below). The test will be **common** for all sections of this course and will be held on **Sunday, October 26, 2025, at 10:00 A.M.** and will be 1.5 hours long**.** The room(s) for the test will be announced one week before the test.

Students who are unable to write the midterm test for a valid reason must inform their instructor in advance to request a 90% final exam option for their grade (*see the NOTE below*). Such a request **will not** be granted unless it is made in writing by email, the reason accepted as valid and supported by appropriate letter or other documentation. **Valid reasons** for missing the midterm test include time conflicts (coinciding **exam times**) with other exams, religious observances (must be reported to the instructor ***in advance***), illness (to be reported as soon as possible and supported by a valid medical note), a scheduled academic or athletic event (the student must be an active member of the team, to be supported by a letter from the coach). Students who miss the midterm test but were not approved for "90% final exam + 10% assignments" option as described above will not be granted it and will forfeit the marks for the midterm test.

N.B.: Travel arrangements are not considered a valid reason for missing the midterm test.

NOTE: If you are taking another course with a common midterm test at the same time (NOT just the day) as this one, you may choose which of the two tests you want to write. If you are choosing to write the midterm for this course, you must then inform the instructor of the other course that you will not write their test because of the time conflict. If the midterm to be missed is from MATH 200-MATH 209 then the "90% final +10% assignments" scheme will be applied to calculate your grade for that other MATH course.

Final Exam: The final examination will be three hours long and will cover all the material in the course.

NOTE: Students are responsible for finding out the date, time, **and location** of the final exams once the schedule is posted by the Examinations Office. Problems with the scheduling of the final exam must be reported to **the Examinations Office, not to your instructor**.

Grading Scheme: The final grade will be based on the higher of (a) or (b) below:

a) 10% for the assignments,
30% for the midterm test,
60% for the final exam.

b) 10% for the assignments,
10% for the midterm test,
80% for the final exam.

NOTE: Because the midterm test in option (A) contributes as high as 30% to your Grade, the "Short-Term Absence form" **cannot be used as a justification for missing the midterm test** for either grading option.

IMPORTANT: **PLEASE NOTE THAT THERE IS NO "100% FINAL EXAM" OPTION IN THIS COURSE.**

*If you are repeating this course and have an old **MyLabMath** account, you might be able to get your account extended. **Please try to register for MyLabMath as per the instructions**. Use the same username and password that you used in the previous semester.
PLEASE NOTE: **MyLabMath** ACCESS IS NOT TRANSFERRABLE BETWEEN PRODUCTS. (E.g. Math 206 and Math 208. DO NOT use the same product so the access is not transferrable). If you had access in the past and are asked for an access code then choose the 14-day free trial and contact our Pearson representative at molly.armstrong1@pearson.com with the following information:

- Your full name, email address, Pearson username, and Concordia student ID number.
- The name of the course, section, instructor name and the term you are currently registered in (e.g. MATH 206/Sec. A – Fall 2025)

Weeks	Sections		Supplementary Problems
1	R4	Polynomials	27, 33, 37, 49, 57, 61, 71, 73, 75, 87, 95, 99
	R5	Factoring Polynomials	17, 19, 27, 29, 35, 41, 49, 53, 71, 75, 83, 91, 95
	R7	Algebraic Expressions	7, 9, 13, 19, 27, 39, 49, 65, 69
	R8	n^{th} Roots, Rational Exponents	9, 15, 18, 29, 31, 45, 48, 49, 59, 69
2	1.1	Linear Equations	17, 19, 25, 29, 37, 41, 47, 77, 81
	1.2	Quadratic Equations	9, 17, 33, 36, 37, 42, 43, 49, 55, 65, 79, 89
	1.4	Radical Equations, Equation Quadratic in Form; Factorable Equations	8, 11, 17, 21, 33, 41, 45, 49, 55, 65, 73, 77
	1.5	Solving Inequalities	55, 57, 61, 63, 69, 81, 99
3	1.6	Equations and Inequalities involving Absolute Value	7, 11, 25, 29, 35, 37, 41, 47
	1.7	Problem Solving	23, 25, 31, 34, 35, 45
	2.1	Distance and Midpoint	21, 24, 31, 37, 40, 57
	2.2	Graphs of Equations, Intercepts, Symmetry	17, 23, 25, 41, 43, 45, 51, 53, 56, 61, 64
4	2.3	Lines	15, 21, 25, 39, 41, 49, 52, 62, 72, 78
	2.4	Circles	14, 17, 22, 25, 29, 35, 39
	3.1	Functions	27, 29, 31, 37, 47, 54, 57, 63, 70, 87, 89, 93
	3.2	Graphs of Function	14, 23, 27, 35
5	3.3	Even and Odd Functions	33, 34, 39, 41, 42
	3.4	Library of Functions	18, 19, 21, 23
	3.5	Graphing Techniques, Transformations	19, 21, 23, 25, 29, 53, 59
	3.6	Mathematical Models	5, 10, 13, 23
6	4.1	Linear Functions	29, 31, 39, 49
	4.3	Quadratic Functions	19, 21, 37, 41, 44
	4.4	Quadratic Models	8, 9, 14, 17
	4.5	Inequalities involving Quadratic Functions	3, 6, 7, 11, 15, 21, 25
7	5.1	Polynomial Functions	17, 19, 21, 25, 27
	5.3	Properties of Rational Functions	11, 14, 21, 27, 29, 37, 42, 44, 47
	5.4	Graph of Rational Function	7, 10, 17, 20
	5.5	Polynomial and Rational Inequalities	3, 6, 8, 13, 18, 22, 24, 26, 31
8	6.1	Composite Functions	14, 15, 17, 23, 25, 31, 39
	6.2	One-to-One and Inverse Functions	33, 35, 50, 51, 59, 61, 65, 75, 90
9	6.3	Exponential Functions	13, 17, 19, 38, 41, 51, 53, 60, 62, 64, 66, 75, 77
	6.4	Logarithmic Functions	10, 13, 19, 23, 27, 29, 31, 37, 43, 46, 77, 82, 91, 93, 97, 101, 103, 111, 119, 133
	6.5	Properties of Logarithms	7, 10, 14, 15, 19, 31, 33, 36, 39, 41, 53, 55, 62, 81, 83, 87
10	6.6	Logarithmic and Exponential Equations	6, 8, 25, 27, 33, 37, 42, 47, 51, 55
	6.7	Compound Interest	5, 7, 13, 16, 21, 25, 32, 36, 39, 41, 46, 50
	6.8	Exponential Growth and Decay Models	2, 4, 7, 9, 11
11	8.1	Systems of Linear Equations	17, 20, 21, 23, 26, 30, 32, 37, 55, 58, 62
	8.6	Systems of Non-Linear Equations	5, 9, 16, 26, 34, 41, 46, 71, 73, 87
12	**Review**		

Student Services
You may wish to access the many services available to you as a Concordia student. An overview of these resources can be found here: https://www.concordia.ca/students/services.html

Academic Integrity and the Academic Code of Conduct
This course is governed by Concordia University's policies on Academic Integrity and the Academic Code of Conduct as set forth in the Undergraduate Calendar and the Graduate Calendar. Students are expected to familiarize themselves with these policies and conduct themselves accordingly. "Concordia University has several resources available to students to better understand and uphold academic integrity. Concordia's website on academic integrity can be found at the following address, which also includes links to each Faculty and the School of Graduate Studies: https://www.concordia.ca/conduct/academic-integrity.html" *[Undergraduate Calendar, Sec 17.10.2]*

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.

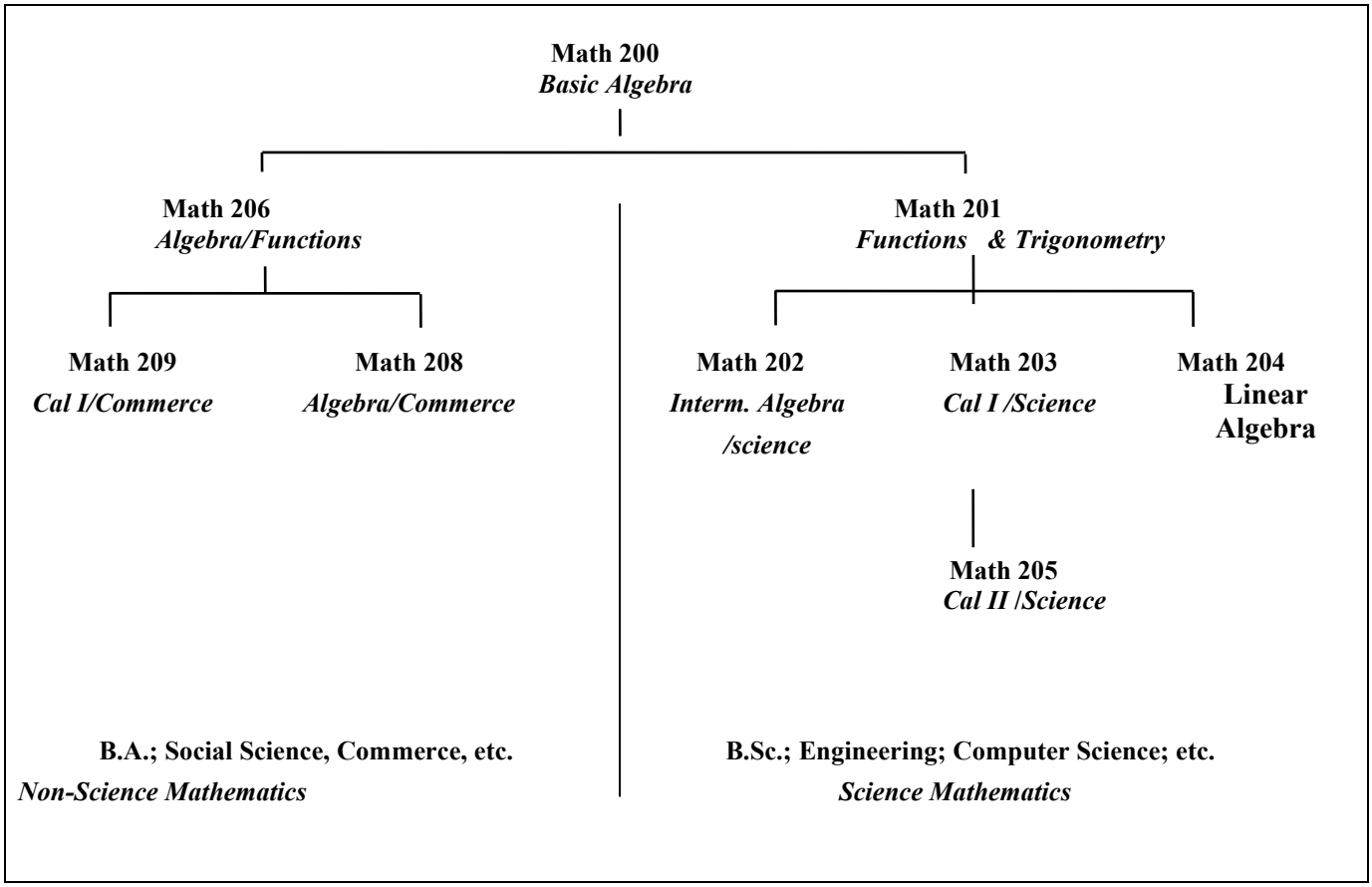
Intellectual Property
Content belonging to instructors shared in online courses, including, but not limited to, online lectures, course notes, and video recordings of classes remain the intellectual property of the faculty member. It may not be distributed, published or broadcast, in whole or in part, without the express permission of the faculty member. Students are also forbidden to use their own means of recording any elements of an online class or lecture without express permission of the instructor. Any unauthorized sharing of course content may constitute a breach of the Academic Code of Conduct and/or the Code of Rights and Responsibilities. As specified in the Policy on Intellectual Property, the University does not claim any ownership of or interest in any student IP. All university members retain copyright over their work.

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

Choosing Between Math 200 and Math 206

If the last math course you took was at the high school level (Quebec), and more than five years have passed since, you should probably register for Math 200. If you are still unsure of your level, read on.

Math Courses at Concordia



A self-administered test to help you decide between Math 200 and Math 206, follows. Give yourself about 20 or 30 minutes to complete the test. Be honest with yourself, since registering in the wrong course may cost you money and result in a poor grade. Remember that all university level courses usually demand quite a bit of your time. Students in Math 206 will find they will not have time once the course begins to review material that they are expected to know before they enter the course.

Dropping a course: If you find yourself "out of your depth" and decide to drop the course, you must drop the course on your My CU Account at https://hub.concordia.ca/students/account.html before the published deadline. ***If you just stop going to class without formally discontinuing the course, you will receive an F grade for the course.***

MATH 206 Self-Test
(One Mark for each correct answer)

Simplify (write as a single number) 1) $3^2 - 2^3$

2) $\dfrac{6-4(6-4)}{2}$

Solve for x: 3) $\dfrac{3}{2x-1} = \dfrac{7}{3x+1}$

4) $3x + 10 = 4$

Expand (multiply out): 5) $(a-b)^2$

Factor: 6) $x^2 - 16$

7) $x^2 + 5x + 6$

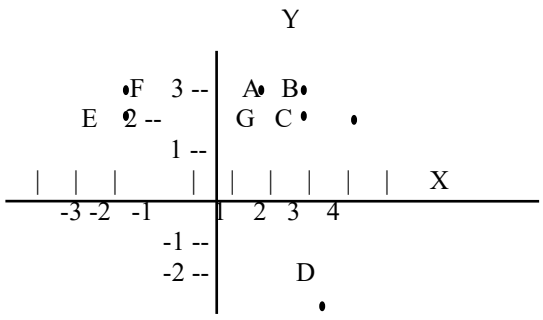
Substitute $a = 1, b = 1,$ in the following equations in order to determine whether or not the statement is true or false:

8) $\dfrac{1}{a} + \dfrac{1}{b} = \dfrac{2}{a+b}$

9) $\sqrt{a+b} = \sqrt{a} + \sqrt{b}$

Give the missing step or steps: 10) $\dfrac{a^2+a}{a+1} = ? = a$

11) Locate the points (3,2) and (-2,2) on the plane below:



12) Write an algebraic expression for: Twice x is equal to 3 less than half x.

Scoring: 6 or less = Math 200; 7-8 = see an advisor; 9 or better = Math 206.

Answers:

1) 1 **2)** -1 **3)** 2 **4)** -2 **5)** $a^2 - 2ab + b^2$ **6)** $(x+4)(x-4)$ **7)** $(x+2)(x+3)$ **8)** False, $2 \neq 1$ **9)** False, $\sqrt{2} \neq 2$ **10)** $\dfrac{a(a+1)}{(a+1)} = a\dfrac{(a+1)}{(a+1)}$ **11)** C is (3,2), E is (-2,2) **12)** $2x = \dfrac{x}{2} - 3$