

MATH 206
Algebra & Functions
Summer 2015

Instructor*: _____

Office/Tel No.: _____

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.

Course Examiner: Dr. D. Sen

Text: *College Algebra*, 9th Edition, by Michael Sullivan, Pearson/Prentice Hall, with *Student Solutions Manual*. **CUSTOM EDITION.**

Note: It 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.

Math Help Centre: It has been organized to help students in solving problems. The location is LB 912 and the schedule is posted in the Department.

Assignments: Assignments are given for every class. Students are expected to submit electronic assignments through **MyMathLab**. There is not enough class time to do all examples needed for a good understanding of the material, and so students are strongly encouraged to do as many problems on their own as their time permits. The suggested supplementary (all odd numbered) problems included in this outline for each lecture are specially selected to complement the assignments. In addition, a solutions manual for all odd-numbered questions is packaged with the text to provide quick and through feedback.

MyMathLab: Every student who buys a book will receive an access code to an online system called **MyMathLab**. Access codes can also be purchased in the Concordia bookstore. The system provides you with many exercises and practice problems. Students will use this system to do online assignments. Students also are strongly encouraged to use this resource to help with problems similar to the assignment problems, and in areas where they need extra assistance.

Calculators: Only calculators approved by the Department (with a sticker attached as proof of approval) are permitted in the class test and final examination. The preferred calculators are the **Sharp EL531** and the **Casio FX 300MS**, available at the Concordia Bookstore.

Test: There will be one midterm test during the course. Missed tests cannot be made-up.

NOTE: It is the Department's policy that test missed for any reason, *including illness*, cannot be made up. If you miss the midterm test because of illness (*to be confirmed by a valid medical note*), the final exam can count for 90% of your final grade.

Final Exam: There are no exemptions from this three-hour exam.

Final Grade: The final grade will be based on the higher of **(a) or (b)**:
(a) 10% for the assignments, 20% for the midterm test, and 70% for the final exam.
(b) 10% for the assignments, 10% for the midterm test, and 80% for the final exam.

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

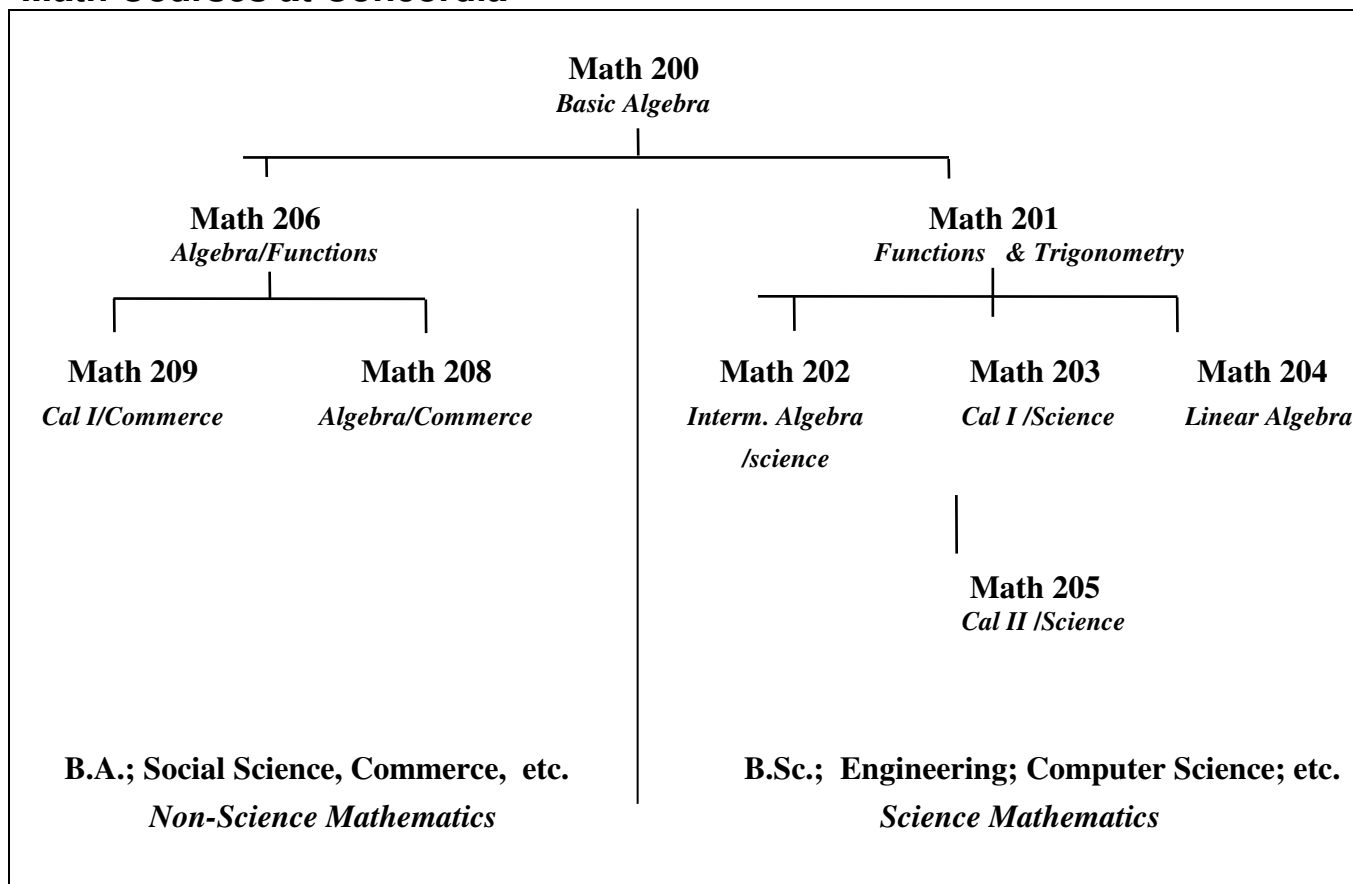
Lectures	Sections		Supplementary Problems
1	R4	Polynomials	27, 33, 37, 49, 57, 61, 71, 73, 75, 87, 95, 99
	R5	Factoring Polynomials	17, 19, 27, 29, 35, 41, 49, 53, 71, 75, 83, 91, 95
	R6	Synthetic Division	5, 9, 19, 23
	R7	Algebraic Expressions	7, 9, 13, 19, 27, 39, 49, 65, 69
2	R8	n^{th} Roots, Rational Exponents	9, 15, 18, 29, 31, 45, 48, 49, 59, 69
	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
3	1.5	Solving Inequalities	55, 57, 61, 63, 69, 81, 99
	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

4	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
	2.3	Lines	15, 21, 25, 39, 41, 49, 52, 62, 72, 78
	2.4	Circles	14, 17, 22, 25, 29, 35, 39
5	3.1	Functions	27, 29, 31, 37, 47, 54, 57, 63, 70, 87, 89, 93
	3.2	Graphs of Function	14, 23, 27, 35
6	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
7	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
8	5.1	Polynomial Functions	17, 19, 21, 25, 27
	5.2	Properties of Rational Functions	11, 14, 21, 27, 29, 37, 42, 44, 47
	5.3	Graph of Rational Function	7, 10, 17, 20
	5.4	Polynomial and Rational Inequalities	3, 6, 8, 13, 18, 22, 24, 26, 31
9	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
10	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
11	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
12	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
13	Review		

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 myconcordia portal at www.myconcordia.ca 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.*

Help: The Math Department runs a drop-in **Math Help Centre** in **LB 912** - call the Department's office for further information at 848-2424, Ext. 3222/3223 or visit www.mathstat.concordia.ca. Counseling and Development runs math skills workshops, 2 or 3 times a week - call the Counseling and Development's office for further information at 848-2424, Ext. 3555/3556 or visit cdev.concordia.ca

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

Simplify (write as a single number)

1) $3^2 - 2^3$

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

Solve for x:

3) $\frac{3}{2x-1} = \frac{7}{3x+1}$

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:

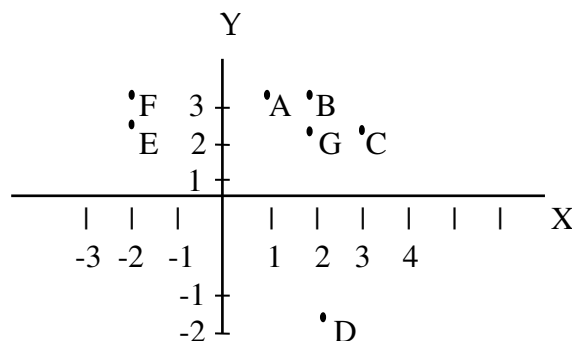
8) $\frac{1}{a} + \frac{1}{b} = \frac{2}{a+b}$

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

Give the missing step or steps:

10) $\frac{a^2 + a}{a+1} = ? = a$

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) $\frac{a(a+1)}{(a+1)} = a \frac{(a+1)}{(a+1)}$ 11) C is (3,2), E is (-2,2) 12) $2x = \frac{x}{2} - 3$