

Math 104, Algebra 2
Summer 2018
MTWTh 4:30am-7:40pm
Section Number: 2355

Instructor: Benjamin Holt

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Office Hours: MTWTh 3pm-4:30pm, Math Lab

Textbook: Algebra: The Language and Symbolism of Mathematics, 3rd Edition, McGraw Hill. ISBN 9780073384245.

Algebra II. Prerequisite: MATH 101 with a grade of C or better, or P, or placement through the assessment process. The study of functions using graphical, numerical, formulaic and descriptive techniques. Students will solve problems and applications modeled by linear, polynomial, rational, exponential, logarithmic functions and quadratic functions in one and two variables using conic sections. Students also perform operations, simplify expressions and solve equations involving polynomials, complex numbers, matrices and rational exponents. Introduction to series and summation notation, as well as transformations and the algebra of functions. (MJC MATH 90)

The *Approximate* Daily Structure of this Course: Students must come PREPARED. By *prepared* I mean the following:

- 1) Each student must read the sections the day BEFORE they are covered in class.
- 2) Each student must be prepared to work with others and present problems in class.

1st Lecture: ≈ 25 minutes. Since you are already prepared by the time you walk into class, lectures will be brief and will only supplement your knowledge.

1st Group Work Session : ≈ 25 minutes. Separate into random groups of about 3 or 4 people. Each group will have a worksheet with a random selection of problems similar to the textbook and online homework. I will individually help each group solve the problems on their worksheets.

1st Problem Presentation: ≈ 25 minutes. Each group will choose a representative to present one problem at the board and we will do this for as many problems on the day's worksheet as we possibly can. If your group can't decide on a representative, I will choose a random member of the group to present.

Small Break: 5 minutes.

Repeat. 2nd Lecture, 2nd Group Work Session, 2nd Problem Presentation.

The Student Learning Outcomes: Students who are successful in this course will have mastered the following:

1. Solve quadratic, logarithmic, rational, exponential, and radical equations.
2. Graph and analyze quadratic, logarithmic, rational, exponential, and radical functions.

The next series of items will be used to assess student success in achieving these outcomes.

Online Homework and Practice: For every section in the textbook, there is a homework assignment. Every homework assignment will consist of 20 multiple-choice questions drawn randomly from the homework problems corresponding to a section in the textbook, and to pass the assignment you must get a grade of at least 80%. You may attempt the assignment as many times as you like. When you pass a homework section, the website will generate a certificate which you may then download and send to me via email. The web address for completing homework is

holt.blue/Math_104/homework.html

There are two rules you must follow when submitting online homework:

- 1) You may submit homework for a section at any time AFTER we cover the section, but BEFORE the next exam. I will not accept a homework assignment at any other time.
- 2) You may submit TWO online homework sections on any given date.

If you send me more than two assignments on a given date, I will enter the first two sections into my gradebook which are displayed first in my inbox. You will then need to resend the section(s) I did not enter. So please follow Rule 2) above.

Your homework grade is determined by the total number of assignments you complete divided by the total number of assignments.

Problem of the Week (POW): Every week I will assign a worksheet with a problem (or multiple problems) which emphasize(s) your ability to write mathematics. As such, the quality of your presentation is the most important aspect of the POW. The quality of your presentation is determined by the following criteria:

- Appropriate Heading (Name and POW # in the top right corner) (-2 pts)
- Each page stapled in the upper left hand corner with the pages in order. (-2 pts)
- Neatness and legibility of writing. (-3 pts)
- Work done IN PENCIL and mistakes erased (-3 pts for each crossed out mistake).
- **Pen is not accepted.** (-10 pts)
- A straight-edge or ruler must be used to make figures that contain straight lines (such as

graphs and lines). (-5 pts)

- Graph paper must be used to make graphs. (-3 pts)
- Appropriate work must be shown. (-10 pts)
- Notation must be used correctly. (-3 pts)
- Solutions must be correct (-3 pts) and well-written using complete sentences (-2 pts for each incomplete sentence).

Every POW is worth 10 points. **Every item above not followed will result in a deduction of the point value indicated.**

Late POWs incur a 20% penalty for every classtime they are late.

Semester Exams: There will be three semester exams over the course of the term covering material up to each exam. Every exam will be multiple choice and will consist of 20 questions drawn randomly from our test bank of homework exercises. Every exam you take in this class will generated from

`holt.blue/Math_104/exam.html`

and there you may generate as many practice exams as you like.

Exams days are listed in the course schedule at the end of this syllabus.

If for reasons beyond your control (you must submit proof¹) you will be absent on the day of an exam, you must let me know BEFORE THE EXAM so we can discuss options. Taking an exam late without proof of a valid excuse incurs a penalty of 20% from whatever score you earn. That is, the highest grade you will be able to earn is 80 points. Moreover, you must make arrangements to retake the exam either during my office hours or in the math lab. This must be done BEFORE the next exam, otherwise your exam grade becomes a 0 in my gradebook.

Final Exam: The final exam is cumulative. That is, it will cover all the material discussed over the entire course.

The final exam will follow the same format as the semester exam (20 questions randomly drawn from the entire test bank). The final exam will given ONLY on the day that is scheduled by the college: **Thursday, August 16th.**

Important Note: Although we will use technology on homework and in class, any technology including mobile phones, graphing calculators, or otherwise, is not allowed on exams.

¹Doctor's note, death certificate, etc. Notes from parents and travel arrangements are not accepted.

Course Grade: Your course grade will be determined by the following items and their associated weights:

Participation	1 participation point (PPt) per day	10%
Homework	1 assignment for every textbook section covered in class	10%
Problem of the Week (POW)	Each worth 10 points	10%
Exam 1	100 points max	17.5%
Exam 2	100 points max	17.5%
Exam 3	100 points max	17.5%
Final Exam (Cumulative)	100 points max	17.5%

Your course grade is determined by the formula

$$10 \left(\frac{\# \text{ PPts Earned}}{\text{Total } \# \text{ PPts}} \right) + 10 \left(\frac{\# \text{ HWs Submitted}}{\text{Total } \# \text{ HWs}} \right) + \text{POW Average} + 70 \left(\frac{\# \text{ Exam Pts Earned}}{400} \right)$$

The letter grade equivalents to the above course grade are:

$90 \leq \text{Course Grade} < 100$	A
$80 \leq \text{Course Grade} < 90$	B
$70 \leq \text{Course Grade} < 80$	C
$60 \leq \text{Course Grade} < 70$	D
Course Grade < 60	F

Canvas Course Management System: Your grades for each graded item will be posted on Canvas. Only you will be able to access your grades. This will allow you to not only assess your grade as the semester progresses, it will also allow you to check that I have entered your scores correctly in my grade book.

Extra Help: If you need additional assistance, don't hesitate to drop by and see me during my office hours: MTWTh 4:30pm-5:30pm in the Math Lab.

The math lab is also an exceedingly valuable resource and you should pay them a visit in Sequoia. For even more help, I also encourage you to use the academic achievement center on the 2nd floor of Tamarack. There you can receive a wealth of valuable services including one-on-one tutoring and help with overall academic success.

Students with Disabilities: Persons who wish to request disability-related accommodations should contact the Disabled Student Programs and Services (DSPS) at 588-5130 or visiting them in Manzanita 216. I am happy to work with DSPS and students to help provide any reasonable accommodations. For more details visit

<http://www.gocolumbia.edu/dsps/default.php>

If You're Ever Feeling Down or Anxious: The Health Services Office on campus (in Pinyon) has licensed counselors offering free, private and confidential counseling appointments to registered students. They are available Monday thru Thursday. Go to the Health Services Office (in Pinyon) or call 588-5204 to set up an appointment.

Academic Honesty: Academic dishonesty, including cheating/plagiarism on exams, quizzes and homework is a serious offense and will not be dealt with lightly. College policies regarding this matter will be strictly enforced. If you have further questions, ask your advisor for assistance. Students are responsible for knowing policy regarding academic honesty.

Classroom Conduct: While it is true that this course is highly interactive and your participation is highly encouraged and is a key part of this course, it is explicitly forbidden to converse with other students when it is not appropriate. These situations include, but are not limited to, when I am lecturing and when students are presenting solutions to the class. Audible communication is disruptive and distracting not only myself, but to your fellow students as well. Please respect the time and money your fellow students have invested in this class.

Attendance Policy: You are expected to attend every class for the duration. If I notice that you are absent from your group, I will make a note of it and you will lose your participation point for the day even if you show up later. Also, if you ditch Session 2 and I notice, you will lose your daily participation point.

The policies outlined in this syllabus are subject to change with prior notice.

Course Schedule

Day	Section	Topic	Due
M 7/2	Syllabus	Course Syllabus and Structure	
T 7/3	7.1 & 7.2	Square Roots; Completing the Square	
W 7/4		4th of July Holiday	
Th 7/5	7.3 & 7.4	The Quadratic Formula; Applications of Quadratics	
M 7/9	8.1 & 8.2	Functions; Linear Functions	POW 2
T 7/10	8.3 & 8.4	Absolute Value Functions; Quadratic Functions	
W 7/11	8.5 & 8.6	Analyzing Graphs; Curve Fitting	
Th 7/12		Review	
M 7/16		Exam 1	
T 7/17	9.1 & 9.2	Rational Functions; Reducing Rational Expressions; \times , \div with REs	POW 4
W 7/18	9.3 & 9.4	Addition, Subtraction of REs; Complex REs	
Th 7/19	9.5 & 10.1	Solving Equations with REs; Radical Expressions	
M 7/23	10.2 & 10.3	$+$, $-$, \times , \div of Radical Expressions	POW 6
T 7/24	10.4 & 10.5	Solving Equations w/ Radicals; Rational Exponents	
W 7/25		Review	
Th 7/26		Exam 2	
M 7/30	11.1 & 11.2	Geometric Seqs, Graphs Exponential Funcs; Inverse Funcs	POW 8
T 7/31	11.3 & 11.4	Logarithmic Functions; Evaluating Logarithms	
W 8/1	11.5	Properties of Logarithms	
Th 8/2	11.6	Solving Exponential and Logarithmic Equations	
M 8/6	11.7	Applications of Exponential and Logarithmic Functions	POW 10
T 8/7		Review	
W 8/8		Exam 3	
Th 8/9	12.1 & 12.2	Augmented Matrices & Systems of Equations	
M 8/13	12.3 & 12.4	Horiz./Vert. Shifts of Funcs; Reflections, Horiz./Vert. Stretching/Shrinking	POW 11
T 8/14	12.5	The Algebra of Functions	
W 8/15		Review	
Th 8/16		Final Exam	