

Syllabus

MA 109 - College Algebra Section 211

University of Kentucky, Department of Mathematics

Summer 2021 Semester

Section 211 - MTWRF 10:20-11:20 am, <https://uky.zoom.us/j/83904239901>

Contact Information:

Instructor: Travis Wheeler

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Office Hours:

M 11:30 – 12:30 pm

T 11:30 – 12:30 pm

W 12:00 – 1:00 pm

Other times by appointment

Course Description: College Algebra covers selected topics in algebra, such as a review of high school algebra, quadratic formula, systems of linear equations, introduction to functions and graphing. In particular, we will cover solving equations (linear, quadratic, rational, exponential, and logarithmic), graphing on the Cartesian coordinate system (with special emphasis on lines and their slope), solving systems of linear equations (with substitution and elimination), using technology such as graphing calculators, solving applied problems, and general functions (with emphasis on exponential, logarithmic, polynomial, and rational functions).

Learning Outcomes and Course Goals: The goal of this course is to prepare you to use the basic tools of algebra to manipulate both known and unknown numerical quantities. By succeeding in this course, you should be prepared to study elementary calculus (as presented in MA 123) as well as being able to understand and work with mathematical models in your other course work.

Students who successfully complete this course will be able to:

1. Recognize reasonable answers based on number sense and the algebraic relations that must be satisfied by solutions.
2. Recognize and operate with covariational and functional relationships between quantities
3. Read and express those relationships as implicit equations, explicit (functional) equations, graphs, tables of values, and verbal descriptions
4. Manipulate implicit and explicit equations to solve for a chosen variable, or recast a functional relationship in terms of a chosen independent quantity.
5. Use algebraic techniques to solve applied and modelling problems in restricted settings appropriate for a general mathematics course
6. Analyze and evaluate sample arguments and solutions for correctness and reasonableness
7. Analyze limitations of models, especially in terms of piecewise functions and domain restrictions
8. Use appropriate technology to understand and solve problems

Textbook: The textbook College Algebra, by Jay Abramson and other contributors at OpenStax serves as an important reference work for the course. This textbook is available for free online, or printed for around \$50 to \$60.

Calculators: Technology such as calculators can be very helpful for exploring mathematics. A simple (\$10 to \$30) calculator with powers and logs may be needed for some exam questions.

Using the calculator during a test for any reason other than performing the required calculations (for example, to recall a previously stored formula) will be considered cheating. You may use any graphing calculator that is allowed by ACT. Note that you will not be allowed to use the calculator on a cell phone, or any other communication device. Furthermore, you may not use any calculator that has a computer algebra system (CAS) or a QWERTY keyboard. In particular, you may not use the TI-Nspire CAS, any TI-89, any TI-92, the HP 48GII, any HP 40G, any HP 49G, any HP 50G, the Casio Algebra fx 2.0, the Casio ClassPad 300, the Casio ClassPad 330, or any Casio CFX-9970G.

A graphing calculator can be helpful for parts of the course. A standard choice is the TI-84 (75to125). Most graphing calculators have the same basic functions, and you should be able to learn about your calculator by reading the manual. A free online graphing calculator such as Desmos may be easier and cheaper to use while still providing all the conceptual benefits, however it cannot be used on in-person exams, so one should be familiar with whatever sort of calculator one decides to use. Exams require a scientific calculator (powers, e, log; TI-30 series, \$10 to \$30), or graphing calculator.

Online sections of MA 109 may be provided links to online graphing calculators within the testing software. Check with your instructor to see if this is the case for your section.

Expectations for Student Work: For any written solutions to problems in this course, students are expected to submit work that is clear, legible, and well-written. Students should show all their work in an organized manner, using complete sentences to explain their solutions and justify their computations.

Services for the Study: The Mathskellar is closed for the summer, but The Study has tutoring available. You will find information for The Study here: <https://www.uky.edu/thestudy/schedule>.

Grading: Your final grade is a letter grade A, B, C, D, or E. It is computed from several components (as indicated in the table). Each exam is taken during the allotted class meeting, and has a very strict absence and cheating policy (be careful not to get a zero on the exam). Homework is completed online and requires internet access. The Active Participation score will measure active, engaged, in-class participation. Once the semester is over, including the final exam, your total points can be compared against the grading cutoffs table to find the matching letter grade. Any curve will be decided after the final exam is graded, but is unlikely to be significant barring unforeseen circumstances. A typical grade distribution is 20% of students assigned an A, 25% B, 20% C, 10% D, 10% E, and an additional 15% withdrawing. Grade distributions may change from semester to semester, but this provides a rough indicator of the difficulty students as a whole have with the course. Please note that the option to retake this course are limited. Your grades will be broken down as follows:

- Exam 1: 100 pts (25%)
- Exam 2: 100 pts (25%)
- Exam 3: 100 pts (25%)
- Homework: 80 pts (20%)
- Participation: 20 pts (5%)

Grade cutoffs:

- A: 370 pts
- B: 340 pts
- C: 310 pts
- D: 280 pts
- E: Below 280 pts

Exams: There will be two midterm exams and a final exam. The exams will be administered during the allotted class time. The dates for the exams are as follows:

- Exam 1: July 2nd
- Exam 2: July 22nd
- Final Exam: August 11th

Exams will be free response problems, as in, you'll need to show all of your work for each problem.

Online Homework (WebWork): Homework must be submitted online at WebWork, in the appropriate course as accessed from Canvas. Each student is responsible for submitting the assignment in a way and time that the server will accept. Internet outages, different clocks, and other technical difficulties that occur after 5pm on the due date are at your own risk.

The homework due dates are listed in the course schedule. Homework assignments are always due at 11:59 pm. There will be many homework sets throughout the semester. I will not be extending homework due dates unless under extreme circumstances.

There are more than 1096 homework points in the course, but the homework grade will be based on your best 950 points. For example, if you get 900/950, that's 94.7%, which will equate to 95 pts out of 100 for your final homework grade. If you score above 950 pts, you will only receive 100 pts for your homework grade (no extra credit there). This is to help ensure that one missed assignment (on vacation, work, whatever the excuse) will not ruin your homework grade.

Attendance and Tardy Policy: I will take attendance at every meeting. A student will be counted absent if they are more than 10 minutes late to the Zoom meeting without a valid excuse. If there are special circumstances that will require you to be late to class on a regular basis please contact me as soon as possible. To be excused, you must email me or see me after class, explain the reason for the absence, and provide appropriate documentation. Please refer to the Student Code of Conduct for what constitutes an excused absence (<https://www.uky.edu/studentconduct/code-student-conduct>).

Contact/Office Hour Policy: Feel free to contact me via email. I will respond to emails between 9am and 5pm, Mon-Fri. I will attempt to respond to all emails within 24 hours. I will always be in my "office" during the hours stated above. Feel free to drop by during those time slots.

Accommodations Due to Disability: Please notify your instructor in advance if you need accommodations due to disability. Exam accommodations require one week notice to get everything in place. Most accommodations can be worked out with the disability resource center. They will provide you with a letter for your instructor that should make finding accommodations easy. You should still check with your instructor that everything looks fine (and arrange a private meeting if details need to be discussed).

Academic Dishonesty: All assignments, exams, quizzes, and exercises completed by students for this class should be the product of the personal efforts of the individual(s) whose name(s) appear on the corresponding assignment. Cheating or plagiarism is a serious offense and will not be tolerated. Any potential cheating case will be thoroughly investigated, and could lead to failure in the course or even to expulsion from the university. See Student Rights and Responsibilities in the University Senate Rules (Sections 6.3.1 and 6.3.2) for information on cheating, plagiarism, and penalties. A summary of recent changes to rules on cheating can be found at the academic ombud website.

Classroom Behavior, Decorum, and Civility: Students are expected to be actively participating during class. Students are also expected not to distract others. If you arrive late, leave early, are distracted by your phone, or are otherwise not actively engaged with the class you may not receive credit for participating that day. If you are disrupting class, you may be asked to leave.

College Algebra is traditionally a very difficult class, and many of your classmates will be having a hard time adjusting both to the university and to the demands of the class. You are expected to treat your classmates with respect. It is reasonable to disagree, but you should express your disagreement respectfully. Personal attacks or statements denigrating another on the basis of race, sex, religion, sexual orientation, gender or gender expression, age, national/regional origin or other such irrelevant factors are considered a severe disruption. Harassment will not be tolerated.

Non-Discrimination Statement and Title IX Information: The University of Kentucky faculty are committed to supporting students and upholding the University's non-discrimination policy.

Discrimination is prohibited at UK. If you experience an incident of discrimination we encourage you

to report it to Institutional Equity Equal Opportunity (IEEO) Office, 13 Main Building, (859) 257-8927.

Acts of Sex- and Gender-Based Discrimination or Interpersonal Violence: If you experience an incident of sex- or gender-based discrimination or interpersonal violence, we encourage you to report it. While you may talk to a faculty member or TA/RA/GA, understand that as a "Responsible Employee" of the University these individuals MUST report any acts of violence (including verbal bullying and sexual harassment) to the University's Title IX Coordinator in the IEEO Office. If you would like to speak with someone who may be able to afford you confidentiality, the Violence Intervention and Prevention (VIP) program and Bias Incident Support Services (Frazee Hall – Lower Level), the Counseling Center (106 Frazee Hall), and University Health Services are confidential resources on campus.

Limited Course Repeats: University Senate rule 4.3.3 allows department chairs to prevent a student from registering in a course for a third time, unless a student has withdrawn for urgent, non-academic reasons. The Department of Mathematics enforces this rule for students attempting a fourth registration in MA 109, 110, 113 and 137.

I reserve the right to alter this syllabus but not without written notification to the students.