

MATH 126 - College Algebra, Spring 2023 Course Syllabus

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Office hours: Mon: 11-12, Tues: 9-10 & 6pm-7pm (online), Wed: 11-12, Thurs: 2-3, Fri: 11-12

The Tuesday evening online office hour will be accessible through Google Meet with the meeting code TechMathLeary. Other office hours will be in person, and I may be available by appointment at additional times.

Class Room/Time: INN-B 302, MTWRF 12:00-12:50 pm

Course website: community.wvu.edu/~bal0018/math126S23.html (as a backup website, I will also try to keep the eCampus site updated)

Course announcements and some course material will be posted on the website. Please be sure to check the website regularly, and to regularly check the email address you have on record. You are responsible for any information posted on the course website.

Textbook: Jay Abramson, *Algebra and Trigonometry*, available to download for free at <https://openstax.org/details/books/algebra-and-trigonometry-2e>.

Catalog Data: MATH 126. College Algebra. 3 Hours. Introduces the foundations of analysis designed to precede the calculus sequence with emphasis on functions and graphs. Topics include properties of absolute value, polynomial, rational, exponential, logarithmic functions, and techniques for solving equations and inequalities. This course satisfies GEF3 Mathematics & Quantitative Skills.

Prerequisite: Satisfy the minimum ACT/SAT math score or a minimum grade of C- in MATH 122.

Course Objective: Upon completion of this course the student should have good algebraic manipulative skills, be comfortable with applying functions, be familiar with a variety of graphing techniques, and be able to solve systems of equations.

Learning Outcomes: Upon completion of this course the student will be able to do the following:

1. Use the laws of exponents, and manipulate and simplify algebraic expressions containing fractional exponents, negative exponents, radicals, and fractions.
2. Solve linear, quadratic, polynomial, exponential, logarithmic, and other equations.
3. Solve linear, quadratic, and rational inequalities.
4. Solve word problems.
5. Sketch the graphs of linear, quadratic, polynomial, rational, exponential, logarithmic, and multi-part functions.
6. Find the composition of functions, the inverse of a function, and the domain and range of a function.
7. Solve systems of equations using substitution, elimination, or matrix techniques.

Topics:

1. Prerequisites: Basic Algebra (Chapter 1 - 10 days)
 - (a) Real numbers
 - (b) Algebraic expressions
 - (c) Polynomials and rational expressions
 - (d) Radicals and exponents
2. Equations and Graphs (Chapter 2 - 10 days)
 - (a) The xy -plane and graphs
 - (b) Linear equations and lines
 - (c) Quadratic equations
 - (d) Other types of equations
 - (e) Absolute value equations/inequalities
 - (f) Linear, quadratic, and rational inequalities
3. Functions (Chapter 3 - 10 days)
 - (a) Domain and range
 - (b) Behavior of graphs of functions
 - (c) Graph Transformations
 - (d) Compositions and Inverses
4. Linear, Polynomial and Rational Functions (Chapters 4 & 5 - 9 days)
 - (a) Graphs of polynomial functions
 - (b) Graphs of rational functions
 - (c) Polynomial division and applications
5. Exponential and Logarithmic Functions (Chapter 6 - 10 days)
 - (a) Exponential functions and graphs
 - (b) Logarithmic functions and graphs
 - (c) Laws of logarithms
 - (d) Solving exponential/logarithmic equations
 - (e) Interest formulas and other applications
6. Systems of Equations (Chapter 11 - 5 days)

Grading: Your final grade will be based on homework, quizzes, four exams during the semester, and the final exam. Your final course score will be the maximum of the following two grading schemes:

- 15% Homework + 5% Quizzes + 15% Exam 1 + 15% Exam 2 + 15% Exam 3 + 15% Exam 4 + 20% Final Exam
- 15% Homework + 5% Quizzes + 20% (highest grade of the four exams) + 20% (2nd grade of the four exams) + 15% (3rd grade of the four exams) + 25% Final Exam

Letter Grade Cutoffs: A: 90%, B: 80%, C: 70%, D: 60%, F: below 60%

Exams: There will be four exams, on Wednesday, February 1; Wednesday, March 1; Friday, March 31; and Wednesday, April 19. These will be 50 minute exams taken during the regular lecture time. The final exam time has been set by the university, and will be on Wednesday, May 3 from 10:00-11:50. Make-up exams will only be given to students with excused absences, and such make-up exams must be scheduled within 24 hours of the missed exam.

Homework: Homework will be completed online with MyOpenMath.com. When you sign-up, you will use the Course ID and Enrollment Key given in class and posted on the eCampus site. Homework assignments will be due most Fridays. Note that most problems on the homework assignments may be resubmitted as often as needed until they are correct, so you should strive for a homework percentage near 100%!

Quizzes: There will be a quiz given most weeks in which there is no exam. This will be a very brief quiz given at the beginning of class on Friday, intended to test you with more immediacy than the exams and with less consequence. The problems that appear on the quiz will be taken from the homework problems I assign. Only your best 5 quizzes will count toward your grade, and there will be absolutely NO make-up quizzes.

Getting Help: Always remember: asking for help when you need it is not a sign of weakness, but a sign of strength! Please feel free to attend my office hours or email me if you have questions about the course material. If you are unable to make it to my regularly scheduled office hours, I am willing to make an appointment to meet at another time if possible. Additionally, you can get help in the Math Tutoring Lab in LRC 323 from 8 AM to 4:30 PM. Free tutoring is also available through Student Support Services, located in Benedum 130, and the Student Success Center, located in the library on the second floor of LRC. Finally, I would also encourage the formation of study groups, to learn from each other and help each other learn.

Class policies:

- Graphing or programmable calculators will never be allowed during any exams. Scientific calculators will be considered on an exam by exam basis. You may use any calculator to help you do the homework if you wish, but you should keep in mind that you may be required to solve similar problems without a calculator on the quizzes and exams.
- While class attendance does not directly factor into your grade computation, attendance of each lecture is highly recommended. Regular attendance will tend to lead to better understanding of the course material, which tends to lead to better performance on exams.
- If you believe a problem on a homework assignment or midterm exam has been graded incorrectly, you must notify the instructor of your complaint within 7 days of the date the exam is handed back. If you are unable to retrieve your graded material at the time it is handed back, it is your responsibility to make arrangements with the instructor to retrieve the material at another time.

Institutional Policies: Students are responsible for reviewing policies on inclusivity, academic integrity, incompletes, sale of course materials, sexual misconduct, adverse weather, as well as student evaluation of instruction, days of special concern/religious holiday statements, and the updated COVID-19 statement. For these detailed policies of West Virginia University, please review: <https://tlcommons.wvu.edu/syllabus-policies-and-statements>.

