Math 124 - College Algebra with Applications, Spring 2019
Course Syllabus

Instructor: Brian Leary
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    Office: Learning Resource Center 323K
    Office hours: Mon 9:30-10 & 2-3, Tues 9:30-10 & 1-2, Wed 2-3, Thurs 1-2
Math Tutoring Lab: Wed 9-10, Fri 9-10

Class Room/Time: CAR-B 207, MTWRF 12:00-12:50 pm
Course website: community.wvu.edu/∼bal0018/math124S19.html (as a backup website, I will also try to keep the eCampus site updated)

Homework assignments will be posted on the course website. Course announcements may also be posted on the website or sent via email. 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: Lial/Hungerford/Holcomb/Mullins, *Mathematics with Applications*, 11th edition

Catalog Data: MATH 124. Algebra with Applications. Credits 3. Study of algebra with an emphasis on applications for science, business, technology, and social science. Topics include graphing and solving problems using linear, quadratic, square-root, logarithmic, and exponential functions, solving equations, performing operations on matrices.
Prerequisite: Placement by ACT/SAT Math score or grade of C or better in MATH 122.

Course material: This course focuses on developing algebraic skills with the goal of applying these skills to model real-world situations and solve real-world problems.
An outline of the topics covered can be found on the next page.

Course Objectives: Upon successful completion of the 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, and other equations.

3. Solve linear and quadratic inequalities.

4. Sketch graphs of linear and quadratic functions.

5. Work with logarithmic and exponential functions.

6. Solve a system of linear equations using matrix techniques.

This course satisfies GEF 3 (Mathematics & Quantitative Skills).

Topics:

1. Basic Algebra (9 days - Chapter 1):

   (a) Exponential notation and algebraic expressions

   (b) Multiplication of algebraic expressions   (e) Exponentials and radicals

   (c) Factoring

   (d) Rational expressions   (f) First degree equations

2. Graphs, Lines, and Inequalities (7 days - Sections 2.1-2.4):

   (a) Graphs   (c) Linear models

   (b) Equations of lines   (d) Linear inequalities

3. Quadratic Equations and Inequalities (3 days - Sections 1.7 and 2.5):

   (a) Quadratic equations   (b) Quadratic inequalities

4. Functions and Graphs (8 days - Chapter 3):

   (a) Functions   (d) Quadratic functions

   (b) Graphs of functions   (e) Applications of quadratic functions

   (c) Applications of linear functions   (f) Polynomial functions

5. Exponential and Logarithmic Functions (8 days - Chapter 4):

   (a) Exponential functions   (c) Exponential and logarithmic equations

   (b) Logarithmic functions   (d) Applications of exponential functions

6. Systems of Linear Equations (4 days - Sections 6.1-6.5):

   (a) Eliminating a variable   (c) Matrix operations (OPT)

   (b) The Gauss-Jordan method   (d) Matrix products (OPT)

7. Linear Programming (OPT - Sections 7.1-7.3)

   (a) Graphing linear inequalities in two variables

   (b) Linear programming: the graphical method

   (c) Applications of linear programming

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:

- 5% Homework + 5% Attendance + 5% Quizzes + 15% Exam 1 + 15% Exam 2 + 15% Exam 3 + 15% Exam 4 + 25% Final Exam

- 5% Homework + 5% Attendance + 5% Quizzes + 25% (highest grade of the four exams) + 15% (2nd grade of the four exams) + 15% (3rd grade of the four exams) + 30% Final Exam

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

Homework: There are two types of homework assignments: ungraded assignments and graded assignments.
Ungraded homework assignments will consist of a collection of problems from the textbook for you to solve. These assignments will be posted on the course website. I suggest you do as many of the problems as it takes to understand the material, since the time you spend thinking, trying things, getting wrong answers, and (hopefully) getting right answers is where all the real learning happens!

The homework assignments that will affect your grade are a little different. Each week, each of you will write two problems that are similar to the problems assigned in the ungraded problem sets. You will also write the solution to each of your original problems. You will be graded on the correctness of the solutions to your problems. Try to be unique! If more than a couple people have the exact same problem, I may take off points for lack of originality.
Before each midterm exam, I will give you a review packet that consists of all contributed problems. Then (assuming the problems adequately cover all required material), I will build the exam solely from these problems. This means that you will end up writing every exam problem!

Exams: There will be four exams, tentatively scheduled for Wednesday, January 30; Friday, February 22; Wednesday, March 27; and Wednesday, April 17. 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 Monday, April 29 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.

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, 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 ungraded homework problems I assign. Only your best 5 quizzes will count toward your grade, and there will be absolutely NO make-up quizzes.

Attendance: While I will not take attendance for the first 2 weeks to allow schedules to finalize, I will begin taking regular attendance on Tuesday, January 22. From that point on, there will be approximately 60 lectures. If you miss no more than 8 of those lectures, you will maintain your full 5% for attendance. If you miss 9 or more lectures, you will lose one percentage point for each two lectures missed. (Note: Excused absences such as participation in athletics or clubs will not count toward your total of absences; however, having numerous excused absences may result in a reduction of the allowed unexcused absences as a proportion of the total potentially attended lectures. See me for clarification if you are concerned this may apply to you.)

Class policies:

- Graphing 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.

Getting Help: Please feel free to come to 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.

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, and days of special concern/religious holiday statements. [Available at: https://tlcommons.wvu.edu/qualitymatters/syllabus-policies-and-statements]