

MATH 123-T01
Finite Math
Fall Semester 2013

Catalog: MATH 123 Finite Math (3-0) 3 (Grade of C or better in MATH-93, or 1 unit of high school algebra and an ACT score of 19 or higher. Fundamentals of algebra; functions and graphs; linear functions; introduction to exponential and logarithmic functions; solving linear and quadratic equations; matrices

Objective: Upon completion of this course the student should have good algebraic manipulative skills and good graphing techniques.

Outcomes: The student will be able to:

1. Use the laws of exponents, and manipulate and simplify algebraic expressions containing fractional exponents, negative exponents, radicals, and fractions.
2. Solve linear, quadratic, and fractional equations.
3. Solve linear and quadratic inequalities.
4. Sketch graphs of linear and quadratic functions.
5. Work with logarithm and exponential functions.
6. Solve a system of linear equations using matrix techniques.

This course satisfies GEC 2: Basic Mathematical Skills and Scientific Inquiry.

Instructor: Susan Barton, Ph.D., Professor of Mathematics

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Office/Phone: Engineering Lab Building 101H / 304-442-3297

Office hours: R 9-11, MWF 12-1, MW 2-3; I'm in the Math Lab T 9-11

Class: MWF 9:00 – 9:50 Elab 201

Method: This is a lecture based course meeting 3 times a week.

Resource: A course calendar etc. may be found at community.wvu.edu/~smb031

Tutoring: Elab 107 is also known as the Math Lab. It is open from 8am to 4:30pm and may always be used as a quiet place to study. A schedule will be posted before the second week of class detailing the hours that tutoring is available. Free tutoring is also be available through Student Support Services, which is located in 308/309 Old Main.

Textbook: Lial , Hungerford and Holcomb, Mathematics with Applications, 9th edition, Addison Wesley, 2007

Chapters Covered:

- Chapter 1 Sections 1, 2, 3, 4, 5, 6, 7,
- Chapter 2 Sections 1, 2, 3, 4, 5,
- Chapter 3 Sections 1, 2, 3, 4, 5, 6
- Chapter 4 Sections 1, 2, 3, 4
- Chapter 6 Sections 1, 2, (3, 4 optional)
- Chapter 7 Sections 1, 2, 3, (if time permits)

Topics:

- I. Basic algebra(9 days):
 - a. Exponential notation and algebraic expressions
 - b. Multiplication of algebraic expressions
 - c. Factoring
 - d. Fractional expressions
 - e. Exponents and Radicals
 - f. First degree equations
- II. Graphs, Lines and Inequalities(7 days):
 - a. Graphs
 - b. Equations of Lines
 - c. Linear models
 - d. Linear inequalities
- III Quadratic equations and inequalities (3 days)
 - a. Quadratic equations
 - b. Quadratic inequalities
- IV Functions and graphs (8 days)
 - a. Functions
 - b. Graphs of Functions
 - c. Applications of Linear Functions
 - d. Quadratic Functions
 - e. Applications of Quadratic Functions
 - f. Polynomial Functions
- V. Exponential and logarithmic functions(8 days):
 - a. Exponential functions
 - b. Logarithm functions
 - c. Applications of logarithms functions
 - d. Applications of Exponential functions
- VI. Systems of linear equations(4 days):
(remaining days to be spent on “optional” material below).
 - a. Eliminating a variable
 - b. The Gauss-Jordan Method
 - c. Matrix Operations (opt)
 - d. Matrix Products (opt)
- VII Linear Programming (opt)
 - a. Graphing Linear Inequalities in Two Variables
 - b. Linear Programming: The Graphical Method
 - c. Applications of Linear Programming

Grading and Assessment:

Quizzes/Homework: There will be at least 3 quizzes and 4 collected homework assignments for 25 points apiece. I drop all but the highest 6. (about 3.5% apiece)

Attendance: One point will be assigned for every day that you are in the room when attendance is taken AND you do not use your cell phone or other distracting device in class. This is a participation point and may be taken away at the instructor's discretion. The result will be scaled to 50 points. (about 7% of your grade)

Exams: Three in class hourly tests, each worth 100 points (about 14% of your course grade).

Final Exam: A comprehensive final worth 200 points (about 28% of your grade) will be given.

NOTE: Only excused absences will enable a student to make up exams. This means that you must have an excuse for the day of the missed exam and every subsequent day until you have made it up. In general quizzes may not be made-up. I will accept late homework, up until the time I pass out the solutions, with a penalty of 10% for each day it is late.

Course Grade: Grades are assigned according to the following scale:

A – 90% - 100%	(630 – 700 points)
B – 80% -	(560 – 629 points)
C – 70% -	(490 – 559 points)
D – 60% -	(420 – 489 points)
F - below 60%	

Borderline grades may be improved based on performance and grade distribution of the whole class.

Calculator Usage: Graphing calculators will be forbidden on most exams and quizzes. Phones may not be used as calculators during exams or quizzes.

Computer Usage: None

Reference: None

Laboratory Projects: None

ABET Category Content: Mathematics - Credit 3 or 100%

Disclaimer: The professor reserves the right to make any necessary adjustments to this syllabus.

Academic Integrity: The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, I will enforce rigorous standards of academic integrity in all aspects and assignments of this course. For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the Student Conduct Code http://studentlife.wvu.edu/office_of_student_conduct/student_conduct_code. Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see me *before* the assignment is due to discuss the matter.

Inclusivity: “The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Disability Services (293-6700). For more information on West Virginia University's Diversity, Equity, and Inclusion initiatives, please see <http://diversity.wvu.edu>.”

TENTATIVE Calendar

19	1.1	21	1.2/1.3	23	1.3
26	1.3/1.4	28	1.4 (1-46 only)	30	1.5 (Quiz 1)
2-Sep		4	1.5	6	1.6
9	1.7 (HW 1 due)	11	2.1	13	Review
16	EXAM I	18	2.2	20	2.2
23	2.3	25	2.4	27	2.4/2.5
30	2.5 (1-21 only)	2	3.1 (Quiz)	4	3.1/3.2
7	3.2	9	3.3	11	3.3/3.4 (HW 2 due)
14		16	3.4	18	Review
21	Exam II	23	3.5	25	3.5/3.6
28	3.6	30	4.1	1-Nov	4.1/4.2
4	4.2 (Quiz 3)	6	4.3	8	4.3/4.4
11	4.4	13	6.1	15	6.1 (HW 3 Due)
18	6.2	20	Review	22	Exam III
25		27		29	
2-Dec	6.2	4	7.1	6	7.1/7.2 (HW 4 Due)
9	7.2	11		13	Finals Week! Our final is Monday at 8:00am