Math 110.102.88: College Algebra Course Syllabus

Instructors

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Course Description

This introductory course will create a foundational understanding of topics in Algebra. An emphasis will be on applications to prepare students for future courses like Precalculus or Statistics. After a review of elementary algebra concepts, topics covered include: equations and inequalities, linear equations, exponents and polynomials, factoring, rational expressions and equations, relations and functions, radicals, linear and quadratic equations, higher-degree polynomials, exponential, logarithmic, and rational functions. For a detailed list of course topics, see the list at the end of this syllabus.

Learning Outcomes:

At the conclusion of this course, you are expected to have gained the ability to:

- Express problems and solutions using the language of mathematics and/or logic.
- Solve problems that require rigorous logical demonstrations with multiple steps.
- Define the basic characteristics of a function: domain, range, intercepts, symmetry, etc.
- Recall the definition of a function, basics of functions and their graphs, function operations and function transformations.
- Analyze and graph distinct functions as models in "real-world" examples.
- Recognize various functions including polynomial, rational, radical, exponential, and logarithmic.

Textbook

College Algebra, by Larson, 11th Edition

Online Homework Platform—WebAssign

ISBN-13: 9780357454404

Note: This textbook is offered through WebAssign to pair with the online assignments. It includes seamless access to the eBook as well as study tools to use throughout the course. If you would like to purchase a physical copy of the textbook you are more than welcome to do so, however you will still be required to purchase WebAssign access as well.

Lectures

Prerecorded lectures will be posted for the week in Canvas. There will be live synchronous sessions each week through zoom, with dates posted in the course. During these live synchronous components, homework problems and exam review will take place. Links to the recordings of each live online session will be posted in Canvas. For more information regarding Zoom, please see the Zoom Student Quick Start Guide.

Homework

Homework is assigned for each textbook section on WebAssign. All homework sets for the week are due at 11:59pm ET on Friday. Two attempts are available for each homework assignment, with only the higher score counting. The use of calculator, textbook, and notes is permitted on all homework assignments. The lowest homework grade will be dropped.

Written Assignments

There are six written assignments throughout the course which contain questions that needed to be answered individually, by hand and uploaded to the course directly. They are designed to show the students' ability to communicate mathematically. Solutions are to be uploaded to the course as a .pdf for grading and you may only use a graphing calculator when indicated. They will be hand-graded based on correctness, proper argument, and overall presentation.

Discussion Forums

There will be four required discussion forums in the class. To receive full credit for each discussion forum, you must post an original discussion and at least one response to another discussion or to a response within your original post.

Quizzes

There will be a 5-question WebAssign quiz at the end of each week. The quiz is due at 11:59pm ET on Friday of each week. Two attempts are available for each quiz, with only the higher score counting. The use of calculator, textbook, and notes is permitted on all quizzes. The lowest quiz grade will be dropped.

Midterm & Final Exams

There will be a midterm exam in Week 7, and a final exam in Week 15. The exams are to be completed individually, online, and submitted by 11:59pm ET on the posted due dates. Follow all directions on the exam. The use of a calculator is not permitted on any exam. No other outside resources are permitted.

Collaboration

Collaboration on homework is allowed and encouraged. However, everyone must submit their own assignment. Homework is an essential part of learning the course material. Failing to give it proper attention will significantly harm your performance on the exams and your overall grade for the class.

Late Work

Unless otherwise specified, work will be due on the date given on the Canvas course webpage. A late penalty of 10% will be applied each day after the original due date has passed for assignments turned in late. After 7 calendar days of the original due date, late work will not be accepted. Additional points may be deducted for errors. Any exceptions to this will be solely at the instructor's discretion.

Grading

Your final grade for the class will be given as a weighted average with the weights given as follows:

- Discussion Forums: 10%
- Written Assignments: 15%
- Homework: 20% (lowest grade dropped)
- Quizzes: 15% (lowest grade dropped)
- Midterm: 20%
- Final: 20%

The letter grades are as follows based on your final weighted average:

A: 90-100
B: 80 - 89
C: 70 - 79
D: 55 - 69
F: < 55

Course Topics

1. Chapter 1 – Equations, Inequalities, and Mathematical Modeling

1.1 Graphs of Equations

1.2 Linear Equations in One Variable

1.3 Modeling with Linear Equations

1.4 Quadratic Equations and Applications

1.6 Other Types of Equations

1.7 Linear Inequalities in One Variable

1.8 Other Types of Inequalities

2   Chapter 2 – Functions and Their Graphs

2.1 Linear Equations in Two Variables

2.2 Functions

2.3 Analyzing Graphs of Functions

2.4 A Library of Parent Functions

2.5 Transformations of Functions

2.6 Combinations of Functions/Composite Functions

2.7 Inverse Functions

3   Chapter 3 – Polynomial Functions

3.1 Quadratic Functions and Models