

Cincinnati Christian University
Math 230 College Algebra
Spring 2019 | 3 semester credit hours
Monday/Wednesday/Friday 9:00 a.m. – 9:50 a.m. PH 249

Instructor: Julie Bedi, PhD EdD	Office Location: PH 267
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Foster School of Biblical Studies, Arts & Sciences

Cincinnati Christian University exists to educate men and women to live by Biblical principles and transformed lives, empowering them with character, skills, insight, and vision to advance the kingdom and impact society for Christ. CCU is committed to providing a Christ-centered, liberal arts education taught with a Christian worldview in students' chosen fields of study.

Course Description

A study of algebraic expressions, equations, inequalities, relations, functions and graphs, polynomial and rational functions, systems of linear equations and inequalities, complex numbers, and matrices and determinants. A wide range of applications will be included. Prerequisite: Satisfactory performance on a placement examination or successful completion of MATH 010.

Course Rationale

Since some understanding of mathematics will enhance the study of every discipline, as well as develop skill in mathematical reasoning and competence in real world situations, this class will be particularly relevant to an informed and aware Christian citizenry.

Arts & Sciences Departmental Outcomes

CCU's Arts & Sciences program is designed to prepare students to

1. Communicate effectively in both oral and written forms in a variety of rhetorical contexts, including Standard English.
2. Adeptly utilize modern research and writing tools.
3. Identify decisive events and ideas in the human experience and assess their influences on modern culture and thought.
4. Employ critical and creative thinking and mathematic and scientific principles for problem solving, literary and socio-cultural analysis, intercultural understanding, and research in the sciences and humanities.
5. Demonstrate the integration of academic insights and experiences by constructing and employing a personal framework in which ethical decisions can be made in light of societal values and a Christian worldview.

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Course Learning Objectives (connected to Arts & Sciences Outcome #4 above):

After completing this course, the student should be able to...

1. Graph lines and parabolas
2. Solve linear equations/inequalities in one variable
3. Factor, add, subtract, multiply, and divide polynomials
4. Evaluate functions or expressions and apply the quadratic formula
5. Manipulate formulas involving radicals, exponentials, and logarithms

Required Text and Technology

College Algebra by Newton Alta (see supplemental handout regarding this technology)

****All students are required to have an online subscription to Knewton Alta and a calculator. Phones will not be permitted in class or during tests unless special permission is requested/granted in advance.****

Grading Policy

Students are expected to learn both the mathematics covered in class and the mathematics in Knewton Alta. The two are designed to be supplementary. Completing homework in Knewton Alta is part of the learning experience. Mathematics is learned by doing. Thinking through problems carefully and thoroughly will be emphasized over speed and memorization.

Letter grades will be assigned based on the published grade point system in the CCU Academic Catalog. Grades will be comprised of the following. Note that “assignments” includes any graded class activities, assignments/quizzes in Knewton Alta, in-class pop quizzes, and/or projects.

Tests	50%
Assignments	30%
Final Exam (in class on paper)	20%

Academic Integrity

This class will follow CCU's regulations pertaining to academic integrity. A copy may be found in CCU's Student Handbook.

Disability Services

Students who require academic accommodations due to a documented physical, psychological, or learning disability may request assistance from the Student Services Department. Students are encouraged to complete this process within the first two weeks of the semester. The Student Services Department is located on the upper level of Presidents Hall. You may also contact the office by phone at 244-8150.

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Course Outline

Attendance

You are expected to attend all class sessions and actively participate in examples and activities whether together as a class or individually using Knewton Alta. If you *must* be absent due to illness or an emergency, you are responsible for obtaining any lecture notes or class activity information from the professor or other students.

If you exceed the absentee policy set forth by CCU (i.e. more than four absences from this course), it will result in a grade of FA (failure due to absences), and you will be dropped from the course. **Arriving late to class (i.e. after attendance has been taken) three times will equal one absence.** If you arrive after class attendance has been taken, it is your responsibility to inform the professor after class of your late arrival. Otherwise, you may be counted absent. Also, if a student is present for less than half of a class, it is considered an absence.

Late Assignments

An assignment or quiz will be considered late if it is not submitted by the due date and time. Assignments and quizzes in Knewton Alta may be submitted up to two days past the due date with a 10% penalty deducted each day. After two days, students will not receive any credit for late assignments. Students who are absent because of CCU extracurriculars or otherwise should plan to submit assignments early.

Tests

Tests and exams assess whether the course objectives are being met. If a student misses a scheduled test or exam without making prior arrangements with the instructor, it cannot be made up unless the instructor makes an exception. Even then, a penalty may be given. It is the responsibility of the student to take the quiz/test early or schedule a makeup quiz/test date with the Learning Center within one week of the original test date. The final exam will occur at the end of the semester and will be cumulative. **Please do not make summer travel arrangements until receiving the final exam schedule from the Registrar's Office.**

Course Outline

The course outline follows on the next page. The instructor reserves the right to change or amend any part of this course plan as deemed necessary. There will be an assignment and a quiz in Knewton Alta for each section. There will be one in-class test at the end of each unit. Note that we will not meet for class during Spring Recess (March 11-15) nor on Good Friday (April 19).

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UNIT 1 (LINEAR EQUATIONS & INEQUALITIES)	
Wednesday, January 23	Intro to Course/Knewton Alta 1.1 Evaluate and Simplify Algebraic Expressions
Friday, January 25	1.2 Plotting Points & Graphing Equations 1.3 Identify Slopes and Intercepts
Monday, January 28	1.4 Solve Linear Equations in One Variable 1.5 Word Problems with Linear Equations
Wednesday, January 30	1.6 Interval Notation and Inequalities 1.7 Applications with Linear Inequalities
Friday, February 1	1.8 Graphing Systems of Linear Equations 1.9 Solving Systems of Linear Equations
Monday, February 4	1.10 Applications of Systems of Linear Equations
Wednesday, February 6	1.11 Linear Inequalities in Two Variables
Friday, February 8	Unit 1 Review
Monday, February 11	Unit 1 Test (1.1 – 1.11) **All Unit 1 Assignments & Quizzes Due**
UNIT 2 (FUNCTIONS)	
Wednesday, February 13	2.1 Relations and Functions 2.2 Function Notation
Friday, February 15	2.3 Toolkit Functions 2.4 Domain and Range of Functions
Monday, February 18	2.5 Piecewise Functions 2.6 Graphical Properties of Functions
Wednesday, February 20	2.7 Combinations of Functions 2.8 Evaluate Composite Functions
Friday, February 22	2.9 Transformations of Functions 2.10 Interpretations of Linear Functions
Monday, February 25	2.11 Application of Linear Functions 2.12 Scatter Diagrams and Lines of Best Fit
Wednesday, February 27	2.13 Linear Regression
Friday, March 1	Unit 2 Review
Monday, March 4	Unit 2 Test (2.1 – 2.13) **All Unit 2 Assignments & Quizzes Due**
UNIT 3 (POLYNOMIALS)	
Wednesday, March 6	3.1 Properties of Polynomials 3.2 Characteristics of Parabolas
Friday, March 8	3.3 Graphs of Quadratic Functions 3.4 Applications of Quadratic Functions
Monday, March 18	3.5 Quadratic Regressions
Wednesday, March 20	3.6 Operations on Polynomials 3.7 Long Division of Polynomials
Friday, March 22	3.8 Synthetic Division and Remainder Theorem
Monday, March 25	3.9 Solve Quadratic Equations by Factoring 3.10 Factor Quadratics
Wednesday, March 27	3.11 Factor Quadratics with Special Products 3.12 Solve Higher Order Equations with Factoring
Friday, March 29	3.13 Quadratic Formula
Monday, April 1	Unit 3 Review
Wednesday, April 3	Unit 3 Test (3.1 – 3.13) **All Unit 3 Assignments & Quizzes Due**
UNIT 4 (RADICAL & RATIONAL FUNCTIONS, MATRICES)	
Friday, April 5	4.1 Solve Rational Equations
Monday, April 8	4.2 Graphs and Applications of Rational Functions

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Wednesday, April 10	4.3 Basics of Complex Numbers 4.4 Operations on Complex Numbers
Friday, April 12	4.5 Solve Radical Equations
Monday, April 15	4.6 Introduction to Matrices 4.7 Matrix Multiplication
Wednesday, April 17	4.8 Finding Determinants of Matrices
Monday, April 22	Unit 4 Test (4.1 – 4.8) **All Unit 4 Assignments & Quizzes Due**
UNIT 5 (EXPONENTIAL & LOGARITHMIC FUNCTIONS)	
Wednesday, April 24	5.1 Evaluate and Write Exponential Functions 5.2 Applications of Exponential Functions and Base e
Friday, April 26	5.3 Exponential Function Graphs 5.4 Relate Logarithms and Exponents
Monday, April 29	5.5 Evaluate Logarithmic Expressions 5.6 Logarithmic Function Graphs
Wednesday, May 1	5.7 Basic Properties of Logarithms 5.8 Rewrite Logarithmic Expressions Using Properties
Friday, May 3	5.9 Solve Exponential Equations 5.10 Solving Exponential Equations and Applications
Monday, May 6	5.11 Solve Logarithmic Equations 5.12 Applications of Exponential and Logarithmic Functions
Wednesday, May 8	Unit 5 Test (5.1 – 5.12) **All Unit 5 Assignments & Quizzes Due**
Friday, May 10	Semester Review
May 13-16	Exam Date TBA by Registrar's Office