American Public University System

The Ultimate Advantage is an Educated Mind

School:	Science, Technology, Engineering and Math
Course Number:	MATH110
Course Name:	College Algebra
Credit Hours:	3 Credit Hours
Length of Course:	8 Weeks
Prerequisite:	While there are no pre-requisites for MATH110, the course assumes the student has completed MATH101 Introduction to College Algebra or an equivalent course.

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Course Description

This course investigates the concepts of college algebra. The course covers the concepts of algebra, graphing and solution of linear and quadratic equations, inequalities and the solution of systems of linear equations. The course is organized into four distinct parts. The first part of the course covers the basic concepts involved in graphing points and linear equations. The second part of the course investigates the solution and graphing of inequalities and systems of linear equations. The third part of the course concentrates on the manipulation and use of exponential expressions and radicals. The final part of the course considers the solution of quadratic equations and their applications.

Practical applications are provided throughout the course. There is careful attention to the presentation of concepts that will become important in the

study of analytic geometry, trigonometry and calculus. The course assumes the student has completed MATH101 Introduction to College Algebra or an equivalent course and is completely comfortable with the language of algebra, equations and inequalities, polynomials, factoring, and rational expressions. If a lower-level math course has not been completed recently, we recommend that students take the 16-week session of MATH110. The eight-week session is recommended only for students with prior math experience and who have an adequate amount of time to pursue a highly accelerated course of study in eight weeks.

Course Scope

The course is delivered online and is organized into distinct parts. The first part of the course covers the basic concepts involved in graphing points and linear equations. The second part of the course investigates the solution and graphing of inequalities and systems of linear equations. The third part of the course concentrates on the manipulation and use of exponential expressions and radicals. The final part of the course considers the solution of quadratic equations and their applications. Practical applications are provided throughout the course.

Course Objectives

After completing the course, the student should be able to accomplish these Learning Objectives (LO):

1. Solve algebraic problems using graphs
2. Solve algebraic problems using equations
3. Translate equations and inequalities into equivalent forms through the application of the rules of algebra.
4. Solve systems of linear equations with two equations.
5. Solve problems involving equations and inequalities.
6. Solve problems involving rational exponential functions.
7. Solve quadratic equations.
8. Compute descriptive measures using graphs.
9. Apply mathematical problem solving methods.

10.	Develop mathematical models using one or two linear equations to solve an applications problem.

11.	Apply math concepts to situations in everyday life.

Course Delivery Method

This mathematics course delivered via distance learning will enable students to complete academic work in a flexible manner, completely online. Course materials and access to an online learning management system will be made available to each student. Assigned faculty will support the students throughout this eight-week course.

The nature of an online course requires a significant amount of independent work. The student will be provided with structure, resources, guidance and instructor experience for learning the course material. The student, however, is responsible for managing time, completing assignments on time, completing the readings, and making inquiries as needed to complete the course effectively. This is an 8-week course, which means the material must be learned in a relatively short period. This requires dedication and diligence on the part of the student.

It is important for the student to check email and Announcements for each week's work. Additional readings, internet-work and assignments will be posted online at the beginning of each week of the course. Assignment due dates will be posted with assignment directions. All assignments will have due dates of a week or more, therefore, no extensions or last-minute exceptions are anticipated. The student is expected to complete all work on time.   Online assignments are due by 11:55 p.m. ET on the due date for the assignment. This includes Forum questions and activities, examinations, and individual assignments submitted for review or grading by the instructor.

The University requires that each student contact their instructor at least weekly during the semester, which in this course will be necessary to complete all assignments. Due to the busy student schedules, all work and discussions are asynchronous, meaning students are not required to be online at a specific time with the instructor or other students. Instead, students may post comments or questions on the forums as they are available each week. Students may, of course, interact with the professor or other students via the Forums or Messages room at any time or with the professor during office hours or by appointment.

Each student is responsible for the following:

- Completely reading the syllabus. Should questions arise about the syllabus or the course that are not covered or should the student need clarification, the instructor may be contacted via email or in the Forums.

- Reading email for important updates and course information each week.

- Reading the assignments in a timely manner to ensure all questions concerning all assignments and the Final Exam are specifically addressed.

- Completing assignments on time. Students will deliver completed assignments in the mode specified by the instructor. The details for each of these can be found in this syllabus and the Weekly Announcements.

- Submitting all assignments, completing the Forum activities and submitting the final exam on time. These are the graded submissions. Students should complete these during the time periods assigned for each of them. These should be submitted by 11:55 p.m. ET on the due date announced by the professor.

Course Resources

Students will need a calculator to successfully complete this course. The calculator should include a memory and square root function. At the student's discretion, a scientific calculator capable of performing statistical functions or a computer spreadsheet program like Microsoft Excel may be used. Students may make use of the above for all graded assignments during the course.

Supplementary Materials

The lessons contain links to online supplementary materials for this class. You may click on the links in the lessons directly to view them. In addition to these, the following public domain web sites are useful. Please abide by the university's academic honesty policy when using Internet sources as well. Note web site addresses are subject to change.

Site Name	Web Site URL/Address
Khan Academy	http://www.khanacademy.org/
PatrickJMT	http://patrickjmt.com/
Purplemath	http://www.purplemath.com/modules/
VirtualMathLab	http://www.wtamu.edu/academic/anns/mps/math/mathlab/col_algebra/index.htm

Evaluation Procedures

Forum Assignments: The University requires weekly contact from each student. This requirement can be met by taking the Unit Tests and by participating in the Forums. A total of 16% of the final grade will be based on participation in the weekly Forums. Forum postings are expected to be written in complete sentences using correct grammar and spelling. Any posting which requires research must be accompanied by a citation of the references used.

Homework: Homework problems are incorporated in the Lessons for each week of the class. These homework problems are 28% of your final grade and are an important factor in your success at mastering the subject. Math is not a spectator sport - one learns math by putting the pencil to the paper!

Weekly Tests: There will be a graded test during each week of the course. Each will be a 25-question online, open-note exam. You may not consult with any other person while taking the exam. A total of 35% of the final course grade comes from these tests. These assignments will follow each week of the course and will be problems or questions similar to those in the Lessons. They are selected to provide the student with hands on experience in applying the techniques and models being discussed.

Final Exam: The final exam will count as 20% of the final grade. It will also be a 25-question online exam. You may not consult with any other person while taking the exam. This examination will be based on all material covered during the semester. The questions will require computations and application of the material covered during the semester. Please coordinate with the professor for any special arrangements. Unless the professor approves alternate arrangements, students should plan to take the final examination during the last week of the course.

TASK	% OF FINAL GRADE
APUS Honor Code	1%
Forums	16%
Homework	28%
Weekly Tests	35%
Final Examination	20%
Total	100%

8 – Week Course Outline

Please see the Student Handbook to reference the University grading scale.

Course Outline

Week	Topics	Learning Objectives	Reading And Study	Assignment
1	**The Rectangular Coordinate System**	LO 1, 2, 3, 8 Plot a point, given the coordinates Determine the coordinates of a plotted point. Find ordered-pair solutions for a given linear equation. Graph a linear equation by plotting ordered pairs. Graph a straight line by plotting its intercepts. Graph horizontal and vertical lines. Find the slope of the line given two points on the line. Find the slope and y-intercept of the	Lesson Week 1	**Honor Pledge Lesson: Week 1 Forum 1 Week 1 Test**

		line given its equation. Write the equation of the line given the slope and y-intercept. Graph a line using the slope and y-intercept. Solve applications using slope-intercept		
2	**Graphing**	LO 1, 2, 3, 11 Equations of a Line Equations of Parallel and Perpendicular Lines Interpreting and Predicting Linear Equations Graphing Linear Inequalities Graphing Inequalities in Two Variables Application of Graphing Functions and Notations Using Function Notation Evaluating Functions	Lesson Week 2	**Lesson: Week 2 Forum 2 Week 2 Test**
3	**Systems of Equations**	LO 1, 2, 3, 4, 5, 6, 8, 9, 10, 11 Systems of Equations Systems of Inequalities Systems of Linear Equations and Ordered Pairs Classifying Solutions Substitution Elimination	Lesson Week 3	**Lesson: Week 3 Forum 3 Week 3 Test**

		Application of Mixture Problems Application of Value Problems Cost and Revenue Applications		
4	**Roots and Rational Exponents**	LO 6 Why It Matters: Roots and Rational Exponents Introduction to Roots Radical Expressions and Rational Exponents Simplify Radical Expressions	Lesson Week 4	**Lesson: Week 4 Forum 4 Week 4 Test**
5	**Working with Radicals**	LO 6, 11 Multiplying Radical Expressions Dividing Radical Expressions Adding and Subtracting Radical Expressions Multiple Term Radicals Rationalizing Denominators Radical Equations Applications of Radical Equations	Lesson Week 5	**Lesson: Week 5 Forum 5 Week 5 Test**
6	**Solving Quadratic Equations**	LO 2, 7, 9 Square Root Property Completing the Square The Quadratic Formula Using the Discriminant to Identify the Nature of the Roots	Lesson Week 6	**Lesson: Week 6 Forum 6 Week 6 Test**

		Writing Quadratic Equations from the Solution		
7	**Quadratic Functions**	LO 2, 6, 7, 9, 11 Characteristics of Parabolas Equations of Quadratic Functions Finding the Vertex, Domain and Range of a Parabola Transformations of Quadratic Functions Analysis of Quadratic Functions Applications with Quadratic Functions The Pythagorean Theorem	Lesson Week 7	**Lesson: Week 7 Forum 7 Week 7 Test**
8	Course Review Final Examination	**Course LO 1 – 11** Review all course materials Demonstrate knowledge of College Algebra	Lesson Week 8	**Forum 8 Week 8 Practice Test Final Exam**

Course Guidance

Please see the Student Handbook to reference all University policies. Quick links to frequently asked question about policies are listed below.
Drop/Withdrawal Policy
Plagiarism Policy
Extension Process and Policy
Disability Accommodations

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- Tutor.com offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a Skill Center Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services

such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc.) and submission file type (such as .docx, .pdf, etc.) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- "Substantive" means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says "I agree" is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting viewpoints, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.