

MATH 120, College Algebra, Syllabus (3 credits)

COURSE DESCRIPTION

Building on MATH 113 Intermediate Algebra, this course develops algebraic skills such as solving equations; graphing and analyzing a variety of functions, including linear, quadratic, rational, exponential, and logarithmic; and solving systems of linear, three-variable, and non-linear equations. The course also includes an introduction to matrices, including identifying parts, performing operations, and solving polynomial and rational inequalities. Prerequisite: Minimum final grade of 70% in MATH 113 Intermediate Algebra or equivalent, or appropriate math placement score. Special Considerations: Not open to students who have successfully completed a higher-level mathematics course. MATH 120 satisfies the General Education Core math requirement unless MATH 210 Calculus I is required.

REQUIRED TEXTS & RESOURCES

- **Textbook:** OpenStax Rice University. (2017). Abramson, J. *Algebra and Trigonometry*
 - Weblink: <https://openstax.org/details/books/algebra-and-trigonometry>
- **Homework software:** WebAssign Access code, ISBN 9781337777346
- **Calculator:** Scientific Calculator or Graphing Calculator
- **[Khan Academy: Algebra](#)**

NOTE: The Point University Bookstore may offer the textbook(s) for this course in other formats. Information can be found at www.pointuniversityshop.com

COURSE SCHEDULE

Each course begins on a Wednesday with a Getting Started module before moving into the week 1-7 content. The introduce yourself forum is required during the Getting Started module in order to be counted present during this half-week of instruction. The introduce yourself forum is open from the start of the course to the first Sunday. All posts are due by Sunday at 11:59 p.m. Participation is required to be marked present for this time period. Keep in mind that in future weeks, forum due dates may be different.

Unless stated otherwise, graded assignments are due on the last day of the course week (Sunday). <http://point.edu/course-schedules/>

GRADING POLICIES

Course Evaluation Plan

An assessment instrument (checklist, rubric, quiz, etc.) will accompany each major graded assignment. See the instructions for specific assignment criteria and accompanying grading instruments.

Points Distribution

Graded assignments will be distributed as follows:

Assignment	Points Possible
Watch Instructor Intro, Create your Introductory Video Clip and Profile Pic	10
Scavenger Hunt	10
1.1-1.4 Review Material (WebAssign)	30
1.5-2.2 Review Material (WebAssign)	30
2.3 Models and Applications	20
2.4 Complex Numbers	15
2.5 Quadratic Equations	10
2.6 Other Types of Equations	15
2.7 Linear Inequalities and Absolute Value Inequalities	10
3.1 Functions and Function Notation	15
3.2 Domain and Range	15
3.3 Rates of Change and Behavior of Graphs	10
3.4 Composition of Functions	20
3.5 Transformation of Functions	15
3.6 Absolute Value Functions	15
3.7 Inverse Functions	15
4.1 Linear Functions	25
4.2 Modeling with Linear Functions (this is a bonus section. You can earn up to 10 extra credit points, but the 'points possible' will be 0)	+/0
5.1 Quadratic Functions	20
5.2 Power Functions and Polynomial Functions	15
5.3 Graphs of Polynomial Functions	15
5.4 Dividing Polynomials	10
5.5 Zeros of Polynomial Functions	30
5.6 Rational Functions	25
5.7 Inverses and Radical Functions	10
5.8 Modeling Using Variation	15
6.1 Exponential Functions	10
6.2 Graphs of Exponential Functions	10
6.3 Logarithmic Functions	35
6.4 Graphs of Logarithmic Functions	15
6.5 Logarithmic Properties	20
6.6 Exponential and Logarithmic Equations	30
6.7 Exponential and Logarithmic Models	10
11.1 Systems of Linear Equations: 2 Variables	50
11.2 Systems of Linear Equations: Three Variables	15
11.3 Systems of Nonlinear Equations and Inequalities: 2 Variables	15
11.5 Matrices and Matrix Operations	15
11.6 Solving Systems with Gaussian Elimination	20
11.7 Solving Systems with Inverses	10

TOTAL	675
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Final Grades

The following scale will be used when calculating final grades:

A	90-100%	D	60-69%
B	80-89%	F	0-59%
C	70-79%		

Final grades will be posted according to the Academic Calendar:

<http://point.edu/academic-calendar/>

COURSE LEARNING GOALS & OBJECTIVES

TIME REQUIREMENTS & COMMITMENTS

This course is 3 credit hours. Regarding time on task, students can expect to spend approximately 16 hours per week for an undergraduate course.

COURSE GOALS AND OBJECTIVES		Program Objective(s)
Goal 1: Students will solve and model equations and inequalities		
	Objective 1.1: Students will graph, interpret, and solve equations on a Cartesian coordinate system.	1.2,1.4,1.5,1.8
	Objective 1.2: Students will solve and interpret equations and inequalities with one variable.	1.2,1.4,1.5,1.8
	Objective 1.3: Students will compute with complex numbers.	1.2,1.4,1.5,1.8
	Objective 1.4: Students will solve quadratic equations.	1.2,1.4,1.5,1.8
	Objective 1.5: Students will use factoring to solve equations and inequalities.	1.2,1.4,1.5,1.8

	Objective 1.6: Students will interpret and solve equations and inequalities with rational exponents, radical equations, and absolute value equations.	1.2,1.4,1.5,1.8
	Objective 1.7: Students will solve real-world application problems.	1.2,1.4,1.5,1.8,2.4
Goal 2: Students will understand and evaluate functions.		
	Objective 2.1: Students will determine if a relation represents a function.	1.2,1.4,1.5,1.8
	Objective 2.2: Students will find the value of a function.	1.2,1.4,1.5,1.8
	Objective 2.3: Students will find the domain of a function defined by an equation.	1.2,1.4,1.5,1.8
	Objective 2.4: Students will combine functions using algebraic operations.	1.2,1.4,1.5,1.8
	Objective 2.5: Students will graph and interpret functions including absolute value functions.	
	Objective 2.5: Students will solve real-world application problems.	1.2,1.4,1.5,1.8,2.4
Goal 3: Students will understand and evaluate linear functions.		
	Objective 3.1: Students will represent and interpret an equation for a linear function.	1.2,1.4,1.5,1.8
	Objective 3.2: Students will model linear functions.	1.2,1.4,1.5,1.8
	Objective 3.3: Students will interpret linear functions within a data model.	1.2,1.4,1.5,1.8
	Objective 3.4: Students will solve real-world application problems.	1.2,1.4,1.5,1.8,2.4
Goal 4: Students will understand and evaluate polynomial and rational functions		
	Objective 4.1: Students will solve problems involving a quadratic function.	1.2,1.4,1.5,1.8
	Objective 4.2: Students will identify power and polynomial functions.	1.2,1.4,1.5,1.8
	Objective 4.3: Students will graph and interpret graphs of polynomial functions.	1.2,1.4,1.5,1.8
	Objective 4.4: Students will divide polynomials.	1.2,1.4,1.5,1.8
	Objective 4.5: Students will solve applied problems involving rational functions.	1.2,1.4,1.5,1.8
	Objective 4.6: Students will model direct and inverse variation problems.	1.2,1.4,1.5,1.8
	Objective 4.7: Students will solve real-world application problems.	1.2,1.4,1.5,1.8,2.4
Goal 5: Students will understand and evaluate exponential and logarithmic functions.		
	Objective 5.1: Students will evaluate, solve, and model exponential functions.	1.2,1.4,1.5,1.8
	Objective 5.2: Students will evaluate, solve, and model logarithmic functions.	1.2,1.4,1.5,1.8
	Objective 5.3: Students will fit exponential models to data.	1.2,1.4,1.5,1.8
	Objective 5.4: Students will solve real-world application problems.	1.2,1.4,1.5,1.8,2.4
Goal 6: Students will understand and evaluate systems of equations and inequalities.		
	Objective 6.1: Students will interpret and solve systems by graphing, substitution, and addition.	1.2,1.4,1.5,1.8
	Objective 6.2: Students will interpret and solve systems with two and three variables.	1.2,1.4,1.5,1.8

	Objective 6.3: Students will interpret and solve systems of nonlinear equations and inequalities.	1.2,1.4,1.5,1.8
	Objective 6.4: Students will find solutions of two matrices.	1.2,1.4,1.5,1.8
	Objective 6.5: Students will solve systems with Gaussian Elimination.	1.2,1.4,1.5,1.8
	Objective 6.6: Students will interpret and solve systems with inverses.	1.2,1.4,1.5,1.8
	Objective 6.7: Students will solve application problems.	1.2,1.4,1.5,1.8,2.4
Goal 7: Students will engage in effective discussions about mathematics		
	Objective 7.1: Students will present solutions of application problems	1.4,1.6
	Objective 7.2: Students will solve problems posted online and comment on solutions	1.4,1.6,1.7
	Objective 7.3: Students will discuss past and current attitudes about mathematics	1.1, 1.6
	Objective 7.4: Students will develop a plan to achieve academic success in mathematics.	1.1, 1.2, 1.6

DISABILITY SERVICES

Point University is committed to providing qualified students with disabilities an equal opportunity to access a Point education through the provision of reasonable and appropriate accommodations and support services. Accordingly, Point complies with Title IX (<https://point.edu/title-ix>) of the Educational Amendments of 1972 and the subsequent reauthorization of that act, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990 and subsequent amendments to that act. For more information about Disability Support Services, see the “Consumer Information” section of the website (<http://point.edu/disclosures>) and the “Student Services” section of this catalog, or contact the Director of Disability Services and College Section 504 Coordinator, at disability.services@point.edu.

COURSE EXPECTATIONS

Attendance

A student is expected to actively participate in each week of the class in which he or she is enrolled. Active participation each academic week includes submitting classwork in one or more of the following activities within the course during the week they are due: discussion forums, assignments such as (but not limited to) projects, papers, presentations, case studies, quizzes, or exams. Students may be absent up to 25% of the class. After absences exceed 25% of the session or term’s total – in either consecutive or cumulative days – the student will be withdrawn from the class roster and assigned a grade on the basis of work completed at the time of withdrawal unless, because of exceptional circumstances, prior arrangements have been made with the professor and the Chief Academic Officer.

Students representing the university, such as student-athletes, remain responsible for submitting work online within the week it is due to be counted present. No student will be disadvantaged while representing the university. However, the responsibility is on the student to notify faculty no later than one week before missing class for any reason, to ensure time for

content to be made available to them and for make-up work to be considered and arranged. It is expected that students will limit their absences outside of these required absences, as they will be dropped if they overcut the allowed number of absences.

The full attendance policy is found in the catalog (<https://point.edu/catalogs/>).

Etiquette & Netiquette

Students are expected to be respectful and well-mannered towards the instructor and their peers, whether in the physical classroom or the online course site. For guidance on meeting this expectation, particularly in the online environment, please see the materials provided during student orientation or reach out to advising.center@point.edu.

Policies

For academic policies governing attendance, late assignments, and student support, please refer to the Academic Catalog directly (<https://point.edu/catalogs/>).

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