

Tompkins Cortland Community College

Master Course Syllabus

Course Discipline and Number: Math 120

Year: 2021-2022

Course Title: College Algebra

Credit Hours: 4

Attendance Policy: To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.

Services for Students with Disabilities: It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for accommodations. All course materials are available in alternate formats upon request.

Course Description: This course covers college algebra between beginning algebra and pre-calculus. Topics include linear, quadratic, absolute value, polynomial, rational, exponential, and logarithmic expressions/equations/functions, function notation, graphing functions, transformations of functions, inverses, complex numbers, and linear, absolute value, and quadratic inequalities. A specified model of a scientific calculator is recommended. MATH 120 fulfills the SUNY General Education Mathematics requirement. Prerequisites: C or better grade in MATH 095 or appropriate qualifying test score; prior completion or concurrent enrollment in ENGL099 or prior completion or concurrent enrollment in ESL 120, 121, and 122 (or prior completion of ESL 103); prior completion or concurrent enrollment in RDNG116. 4 Cr. (4 Lec.)

Course Audience:

This course is a college-level course which prepares students for the advanced math required in careers in business, science, social sciences, computer science, engineering, and education. MATH 120 is the next level of algebra after completion of MATH 095; it is the prerequisite for MATH 138 Pre-Calculus Mathematics. Many programs require MATH 120 (refer to specific program requirements); transfer institutions often require at least a college-level course in mathematics..

Basic Skills/Entry Level Expectations

- Writing** W1 Prior completion or concurrent enrollment in ENGL 099 if required by placement testing
- Math** M4 MATH 095 if required by placement testing
- Reading** R3 Prior completion or concurrent enrollment in RDNG 116 if required by placement testing

Course Goals

Upon successful completion of this course, students will be able to:

1. Students will master algebra skills to prepare them for Pre-Calculus and higher level mathematics.
2. Students will develop an organized, formal approach to problem solving.
3. Students will connect algebraic functions with the graphs of their functions.
4. Students will acquire study and test-taking techniques appropriate to a technical discipline.
5. Students will be able formulate an equation and a procedure to solve the problem.

6. Students will be able to manage information; this involves synthesizing facts, understanding concepts and principles.

Course Objectives/Topics

Objective/Topic	% Course
Solving equations algebraically and graphically including linear, absolute value, quadratic, polynomial, rational, exponential, and logarithmic.	40%
Graphing functions and working with all types of functions (linear, quadratic, polynomial, rational, exponential, and logarithmic), domain and range algebraically and graphically, transformations of all types of graphs, and function notation.	40%
Inequalities – linear, absolute value, quadratic, polynomial and rational.	10%
Simplifying expressions of all types: inverses, complex numbers, and factoring.	10%

General Education Goals - Critical Thinking & Social/Global Awareness

CRITICAL THINKING OUTCOMES	HOW DOES THE COURSE ADDRESS THE OUTCOMES (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
<p>Students will be able to</p> <ul style="list-style-type: none"> ➤ develop meaningful questions to address problems or issues. ➤ gather, interpret, and evaluate relevant sources of information. ➤ reach informed conclusions and solutions. ➤ consider analytically the viewpoints of self and others. 	<p>Students will have to understand the type of problem they are being asked to solve and the method necessary to solve that particular type.</p> <p>Students will be required to recall past processes to solve new problems.</p> <p>Students will be required to recall past processes to solve new problems.</p> <p>Homework assignments, class activities, and tests should be used to address these outcomes.</p>
SOCIAL/GLOBAL AWARENESS OUTCOMES	HOW DOES THE COURSE ADDRESS THE OUTCOMES (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
<ul style="list-style-type: none"> ➤ Students will begin to understand how their lives are shaped by the complex world in which they live. ➤ Students will understand that their actions have social, economic and environmental consequences. 	Not applicable

Instructional Methods

Teaching methods should include lecture, discussion, and group work on given problems. Plus enhancement with the myopenmath website for homework problems or extra in class problems. Homework problems should be emphasized to achieve mathematical skills and understanding of concepts.

Methods of Assessment/Evaluation

Method	% Course Grade
Exams	50-75%
Homework Assignments	10-30%
Projects/Written Assignments	0-10%
Professional Attitude (attendance, class participation)	0-10%

Text(s)

My Open Math (www.myopenmath.com)

Bibliography

Lippman, David and Rasmussen, Melonie. *Pre Calculus: An Investigation of Functions*. Edition 1.5. Washington, 2010.

Stitz, Carl and Zeager, Jeff. *College Algebra* 3rd Edition. Ohio, 2013.

Wallace, Tyler. *Beginning and Intermediate Algebra*. CC-BY. <http://wallace.ccfaculty.org/book/book.html>, 2010.

John McLeish. *Number*. Bloomsbury Publishing Limited, London. © 1991.

Paul J. Nahin. *An Imaginary Tale: The Story of $\sqrt{-1}$* . Princeton University Press, Princeton, New Jersey. © 1998.

James Gleick. *Chaos: Making A New Science*. Penquin Books USA, New York. © 1987

Other Learning Resources

Audiovisual None specified
Electronic Homework assignments on MyOpenMath (www.myopenmath.com)
Other Scientific Calculator