

**Tompkins Cortland Community College**  
**Master Course Syllabus**

**Course Discipline and Number: MATH 138**  
**Course Title: Precalculus Mathematics**

**Year: 2021-2022**  
**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**

Provides the algebraic foundation, from a function standpoint, for a standard calculus course. Topics include; theory of functions and radicals, right triangle trigonometry, analytic trigonometry, law of sines, law of cosines, trigonometry with applications, vectors, polar coordinates, binomial theorem and conic sections. MATH 138 fulfills the SUNY General Education Mathematics requirement. Prerequisites: C or better grade in MATH 122 or MATH 120 (College Algebra), or appropriate qualifying test score; RDNG 116 if required by placement testing; prior completion or concurrent enrollment in ENGL 100 or prior completion or concurrent enrollment in ESL 120, 121, and 122 (or prior completion of ESL 103) if required by placement testing. 4 Cr, (4 Lec.) Fall and spring semesters.

### **Course Context/Audience**

MATH 138 teaches students mathematical concepts required for calculus and for careers that use calculus such as business, science, social science, and engineering. The course follows MATH 120, College Algebra, in the math sequence at TC3; it is a prerequisite for MATH 201, Calculus I. Many transfer institutions require or recommend that students complete MATH 138 before they transfer. Algebra skills at the college math level are required. .

### **Basic Skills/Entry Level Expectations**

**Writing:** WC College level writing skills are required. See course co-requisites or pre-requisites.  
**Math:** MC College-level mathematics skills are required. See course prerequisites for details.  
**Reading:** R4 RDNG 116 if required by placement testing.

### **Course Goals**

By successfully completing the course, the student will be able

1. To approach problem solving in the context of functions.

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2. To master concepts relating to functions and master concepts relating to trigonometry (right triangle and analytic).
3. To develop an organized, formal approach to problem solving.
4. To master graphing conic sections and beginning vectors.

**Course Objectives/Topics**

Objective/Topic	% Course
The student will continue reviewing graphing and solving for unknowns in various types of functions, theory of function, and review of radicals .	20%
The student will learn right triangle trigonometry and analytic trigonometry. Including the law of sines and law of cosines.	35%
The student will use fundamental trigonometric identities to perform algebraic operations with trigonometric expressions.	25%
The student will learn how to graph conic sections, work with vectors, and polar coordinates and work with the binomial theorem	20%

**General Education Goals - Critical Thinking & Social/Global Awareness**

<b>CRITICAL THINKING OUTCOMES</b>	<b>HOW DOES THE COURSE ADDRESS THE OUTCOMES</b> (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
Students will be able to <ul style="list-style-type: none"> <li>➤ develop meaningful questions to address problems or issues</li> <li>➤ gather, interpret, and evaluate relevant sources of information</li> <li>➤ reach informed conclusions and solutions</li> <li>➤ consider analytically the viewpoints of self and others</li> </ul>	Students will have to understand the type of problem they are being asked to solve and the method necessary to solve that particular type.  Students will be required to recall past processes to solve new problems.  Students will be required to recall past processes to solve new problems.  Homework assignments, class activities, and tests should be used to address these outcomes.
<b>SOCIAL/GLOBAL AWARENESS OUTCOMES</b>	<b>HOW DOES THE COURSE ADDRESS THE OUTCOMES</b> (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"> <li>➤ Students will begin to understand how their lives are shaped by the complex world in which they live.</li> <li>➤ Students will understand that their actions have social, economic and environmental consequences</li> </ul>	Smart phone apps can be used by students and are more readily available than computer software programs.  Cheating is discussed.

**Instructional Methods**

Teaching methods should include lecture, discussion, group work. Homework problems should be emphasized to achieve an understanding of the concepts presented.

**Methods of Assessment/Evaluation**

Method	% Course Grade
Tests	50 - 80%
Homework Assignments	10 - 30%
Projects/Written Assignments	0- 10%
Professional attitude (attendance, class participation)	0 - 10%

**Text(s)**

My Open Math ([www.myopenmath.com](http://www.myopenmath.com))

**Bibliography**

Eli Maor. e: The Story of a Number. Princeton University Press, Princeton, New Jersey. © 1994.

David C. Lindberg. The Beginnings of Western Science. The University of Chicago Press, Chicago. © 1992.

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

**Other Learning Resources****Audiovisual**

No resources specified

**Electronic**

Search for "Human Population" on Web,

United Nations Web site about human population growth.

**Other**

No resources specified