

College of Staten Island, City University of New York (CUNY)
Math 130 (Section 17977): Fall 2014 Syllabus

Precalculus Mathematics

Instructor: **Joseph Maher**

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Office hours: M 12:20-2:15, W 1:25-2:15

Course location: M 2:30 - 4:25 1S-115

W 2:30 - 4:25 1S-115

Textbook: Stewart/Redlin/Watson, *PreCalculus - Webassign Edition*, 6th edition, Cengage

ISBN: 9781133594765

Grading policy: 10% Homework and attendance

50% Midterms

40% Final

Additional info:

Disability policy: Qualified students with disabilities will be provided reasonable academic accommodations if determined eligible by the Office for Disability Services. Prior to granting disability accommodations in this course, the instructor must receive written verification of student's eligibility from the Office of Disability Services, which is located in 1P-101. It is the student's responsibility to initiate contact with the Office for Disability Services staff and to follow the established procedures for having the accommodation notice sent to the instructor.

Integrity policy: CUNY's Academic Integrity Policy is available online at
http://www.csi.cuny.edu/privacy/cuny_academic_integrity.pdf

THE COLLEGE OF STATEN ISLAND, CUNY
DEPARTMENT OF MATHEMATICS

**MATH 130 – PRECALCULUS
COURSE OUTLINE**

Text: Stewart, Redlin, Watson, Precalculus, 6th Edition, Enhanced WebAssign Edition.
Brooks/Cole, Cengage Learning (2013). ISBN# 9781133594765

Calculator: A graphing calculator is required. The TI-84 is highly recommended.

Note: Below, each lesson corresponds to a one-hour class. Homework problems must be submitted online using WebAssign.

| Lesson | Section | Topic | Homework Problems |
|--------|---------|--------------------------------------|-----------------------------|
| 1 | 2.1 | Review: Functions and Domain | 49,54,56,58,60,62,64 |
| 2 | 2.2 | Piecewise Defined Functions | 37,38,45,46,50,78,81,82 |
| 3 | 2.3 | Analyzing Graphs of Functions | 7,8,20,21,22,33,34,40,46,49 |
| 4 | 1.10 | Review: Slope as Rate of Change | 67,71,74,75,76 |
| 5 | 2.4 | Average Rate of Change of a Function | 8,11,17,20,22,27,30,31 |
| 6 | 2.5 | Transformations of Functions | 5,6,8,10,17,18,27,28,38,40 |
| 7 | 2.5 | Transformations of Functions | 55,57,59,60,66,69,70,77,80 |
| 8 | 2.6 | Combining Functions | 10,14,16,20 |
| 9 | 2.6 | Composition of Functions | 23,25,29,30,38,41,47,55,64 |
| 10 | 2.7 | One-to-one Functions and Inverses | 14,18,28,31,48,54,76,85,89 |
| 11 | 2.7 | One-to-one Functions and Inverses | |
| 12 | 3.1 | Quadratic Functions | 21,24,32,42,44,54 |
| 13 | 3.1 | Modeling with Quadratic Functions | 66,69,71,72,73,74,76,78 |
| 14 | | Review | |
| 15 | | Review | |
| 16 | | Exam 1 | |
| 17 | | Exam 1 | |
| 18 | 3.2 | Polynomial Functions and Graphs | 8,10,22,28,46,54,64 |
| 19 | 3.2 | Polynomial Functions and Graphs | 72,74,75,76,78 |
| 20 | 3.5 | Complex Numbers | 8,14,19,28,38,46,54,58,64 |
| 21 | 3.6 | Fundamental Theorem of Algebra | 12,16,20,30,34,40,42,56 |
| 22 | 3.7 | Rational Functions | 12,13,16 |
| 23 | 3.7 | Horizontal and Vertical Asymptotes | 28,30,32,48,56,64 |
| 24 | 3.7 | Modeling with Rational Functions | 85,87,88 |
| 25 | 4.2 | Exponential Functions | 12,13,14,35,37 |

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| 26 | 4.3 | Logarithmic Functions | 12,18,28,57,58,77 |
| 27 | 4.4 | Logarithmic Expressions | 36,44,51,53,61,68,71 |
| 28 | 4.5 | Exponential Equations | 22,24,26,32,83 |
| 29 | 4.5 | Logarithmic Equations | 48,50,54,72,73,79,81 |
| 30 | | Review | |
| 31 | | Review | |
| 32 | | Exam 2 | |
| 33 | | Exam 2 | |
| 34 | 5.1 | Unit Circle | 14,18,20,24,25,28,30,40,44,48 |
| 35 | 5.1 | Reference Angle | |
| 36 | 5.2 | Trigonometric Functions | 11,30,52,56,58,62,64,66,78,81 |
| 37 | 5.2 | Fundamental Trigonometric Identities | |
| 38 | 5.3 | Graphs of Sine and Cosine | 18,24,26,30,33,36,42,44,48,80 |
| 39 | 5.3 | Transformations of Sine and Cosine | |
| 40 | 5.4 | Graphs of Tangent and Secant | 10,14,16,18,20,36,44,50 |
| 41 | 5.5 | Inverse Trigonometric Functions | 9,10,33,34,35,36,41,42 |
| 42 | 5.5 | Inverse Trigonometric Functions | |
| 43 | 5.6 | Modeling Harmonic Motion | 12,16,32,33,34,35,37 |
| 44 | 5.6 | Modeling Harmonic Motion | |
| 45 | | Review | |
| 46 | | Review | |
| 47 | | Exam 3 | |
| 48 | | Exam 3 | |
| 49 | 7.1 | Trigonometric Identities | 3,7,11,15,18,23 |
| 50 | 7.1 | Trigonometric Identities | 25,26,31,33,37 |
| 51 | 7.2 | Addition and Subtraction Formulas | 4,8,12,18,20,33,34,55,57,59 |
| 52 | 7.3 | Double-angle, Half-angle, Product-sum Formulas | 3,5,7,9,21,26,30,32,37,39,69,71 |
| 53 | 7.4 | Trigonometric Equations | 26,33,43,53,55 |
| 54 | 7.5 | Trigonometric Equations | 11,17,40,43,44 |
| 55 | | Final review | |
| 56 | | Final review | |

ROLE IN CURRICULUM

MTH 130 is a pre-calculus class that provides mathematical skills necessary for calculus. Students may instead take MTH 230, which includes the material in both MTH 130 and MTH 231

LEARNING GOALS AND ASSESSMENT PLAN

| Learning Goal | Assessment |
|--|------------|
| Solve equations and manipulate expressions with trigonometric, inverse trigonometric, polynomial and rational functions. | NA |
| Analyze graphs of trigonometric, inverse trigonometric, polynomial and rational functions. | NA |
| Solve application problems using these functions. | NA |
| | NA |

When assessment activities are done, the results will be summarized in memorandum form and filed with the department chairperson for record keeping purposes.

Information obtained from assessment will be used to assess and self-reflect on the success of the course and to make any necessary changes to improve teaching and learning effectiveness.

Undergraduate Catalog Course Description

College of Staten Island

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| Course prefix: | MTH |
| Course number: | 130 |
| Course title: | Pre-Calculus Mathematics |
| Subject | Mathematics |
| Minimum credits: | 3.0 |
| Maximum credits: | 3.0 |
| Hours per week: | 4.0 |
| Course description: | A functional approach to algebra and trigonometry. Selected topics such as trigonometric functions, trigonometric identities, inverse trigonometric functions, complex numbers, rational functions introduction to analytic geometry, inequalities, absolute value, theory of equations. Graphing calculators are used. |
| Prerequisite: | MTH 123 or an appropriate score on the CUNY math proficiency/placement Exam or permission of the Department of Mathematics. |
| Comments: | |