



Department of Mathematics and Computer & Information Science

PRECALCULUS MA2090

Departmental Syllabus

TEXTBOOK: **Precalculus**, 11th Edition, Michael Sullivan, Pearson, 2020, ISBN-13: 97800135189405

Prerequisite: A grade of **C** or higher in College Algebra-MA1020

COURSE DESCRIPTION: A study of algebraic, logarithmic, exponential, and trigonometric functions and their graphs. This course is designed primarily for students who wish to take MA2310 Calculus & Analytic Geometry I.

COURSE OBJECTIVES: The main goal of this course is to provide the student with the basic concepts of functions and the mathematical maturity needed for learning calculus. Students will learn the concepts of functions and use them as tools to model and solve practical problems.

ATTENDANCE: Class attendance is required and a record of attendance will be kept. If you miss a class it is your responsibility to find out what material was covered in class, what the homework was and if any announcements have been made about the schedule for upcoming exams.

COURSE EVALUATION & GRADING: Your grade will be based on exams, quizzes, class work, and homework. There will be in class cumulative final exam. The grading scale is as follows:

A = [94, 100] A ⁻ = [90, 93]	B ⁺ = [87, 89]	C ⁺ = [77, 79]	D ⁺ = [67, 69]	F = [0, 59]
	B = [84, 86]	C = [74, 76]	D = [64, 66]	
	B ⁻ = [80, 83]	C ⁻ = [70, 73]	D ⁻ = [60, 63]	

TUTORIAL: Drop-in tutorial is available in the Mathematics Learning Center during the Fall and Spring semesters.

ACCOMMODATIONS FOR STUDENTS WITH SPECIAL NEEDS: If you have or suspect you may have a physical, psychological, medical or learning disability that may impact your course work, please contact The Office of Services for Students with Disabilities (OSSD), Office NAB room 2064, Phone: 516-876-3009. All support services are free and all contacts with the OSSD are strictly confidential.

TOPICS TO BE COVERED

Textbook **Precalculus**, 11th Edition, Michael Sullivan, Pearson, 2020, ISBN-13: 97800135189405

3: LINEAR AND QUADRATIC FUNCTIONS

- 3.1 Linear Functions and Their Properties
- 3.3 Quadratic Functions and Their Properties

4: POLYNOMIAL & RATIONAL FUNCTIONS

- 4.1 Polynomial Functions
- 4.2 Graphing Polynomial Functions and Models
- 4.3 Properties of Rational Functions
- 4.4 The Graph of a Rational Function
- 4.5 Polynomial and Rational Inequalities
- 4.6 The Real Zeros of a Polynomial Function

5: EXPONENTIAL & LOGARITHMIC FUNCTIONS

- 5.1 Composite Functions
- 5.2 One-to-One Functions; Inverse Functions
- 5.3 Exponential Functions
- 5.4 Logarithmic Functions
- 5.5 Properties of Logarithms
- 5.6 Logarithmic and Exponential Equations

6: TRIGONOMETRIC FUNCTIONS

- 6.1 Angles, Arc Length and Circullar Motion
- 6.2 Trigonometric Functions: Unit Circle Approach
- 6.3 Properties of the Trigonometric Functions
- 6.4 Graphs of the Sine and Cosine Functions
- 6.5 Graphs of the Tangent and Cotangent Functions
- 6.6 Phase Shift; Sinusoidal Curve Fitting

7: ANALYTIC TRIGONOMETRY

- 7.1 The Inverse Sine, Cosine, and Tangent Functions
- 7.3 Trigonometric Equations
- 7.4 Trigonometric Identities
- 7.5 Sum and Difference Formulas
- 7.6 Double-Angle and Half-Angle Formulas

8: APPLICATIONS OF TRIGONOMETRIC FUNCTIONS

- 8.1 Right Triangle Trigonometry; Applications
- 8.2 The Law of Sines
- 8.3 The Law of Cosines
- 8.5 Simple/Damped Harmonic Motion