

Math 2600: Calculus I with Trigonometry Refresher
Baruch College
Department of Mathematics

Course Schedule:

The class will meet three days per week. A diagnostic test, which will not count toward the course grade, will be given during lecture in the first week. The diagnostic test will cover basic precalculus topics which students are assumed to have learned in previous classes. This diagnostic test will be used to help students determine concepts for which they will need to refresh their knowledge in order to be successful in this class.

Textbook or ebook: *Calculus, 11th Edition*, Larson & Edwards, Cengage Learning Publisher

A discounted version of the e-text may be purchased directly from Cengage after registering for the online homework on WebAssign. Instructions to complete the purchase will be posted on Blackboard.

An Introduction to Trigonometry for Calculus – Supplemental Notes (provided by math department).

The online appendix for Business and Economics Applications is found in Appendix F at the following link:

http://www.cengage.com/resource_uploads/downloads/1285057090_377848.pdf

Week	Topics	Suggested Problems
0	Precalculus Review (Chapter P)	P2: # 4, 9, 16, 17, 20, 21, 22, 32, 47, 59 P3: # 5, 9, 11, 13, 14, 18, 21, 39 – 42 (all), 59, 61 P4: # 5 – 15 (odd), 16, 17, 19, 22, 33 – 36 (all), 47, 48, 49, 75
1	The unit circle Introduction to Basic Trigonometric Functions Right Angle Trigonometry	Assigned by Instructor
2	Graphing Trigonometric Functions Basic Trigonometric Identities Solving Equations involving Trig Functions	Assigned by Instructor
3	1.2: Limits: Introduction and Properties 1.3: Evaluating Limits Analytically 1.4: Continuity and One-Sided Limits	1.2: # 6, 7, 21 – 29 (all), 33 1.3: # 5, 7, 15, 19, 21, 23, 27, 31, 33, 37, 41 – 51 (odd), 52, 53, 63 – 71 (odd) 1.4: # 5, 7, 9, 11, 15, 19, 21, 23, 31, 34, 41, 43, 47, 52
4	1.5: Infinite Limits 3.5: Limits at Infinity Test #1	1.5: # 4, 5, 11, 13, 17, 23, 25, 33, 35, 37, 38, 41 3.5: # 13, 19, 21, 23, 25, 27, 29, 35
5	2.1: Derivatives: Tangent Line, Velocity, Acceleration, and other Rates of Change 2.2: Differentiation Rules 2.3: Product and Quotient Rule	2.1: # 5, 7, 9, 15, 18, 21, 23, 25, 27, 29, 31, 37, 77, 78, 79, 80 2.2: # 7 – 55 (odd), 56, 59, 61, 91 – 98 (all) 106, 111, 115 2.3: # 11, 17, 20, 21, 23, 25, 27, 29, 33, 41, 43, 45, 47, 51, 52, 53, 59, 61, 64, 65,

		66, 67, 74, 79, 91, 95, 97, 100, 101
6	2.4: Chain Rule 2.5: Implicit Differentiation	2.4: # 9, 10, 11, 15, 16, 17, 20, 21, 23, 25, 27, 37, 46, 47, 57, 61, 66, 69, 73, 75, 83, 87 2.5: # 5, 7, 9, 10, 11, 12, 13, 15, 21, 25, 28, 49, 57, 61
7	2.6: Related Rates 3.3: Increasing and Decreasing Functions and the First Derivative Test	2.6: # 3, 4, 6, 8, 11 – 17 (all), 21, 23, 25, 27, 40, 41 3.3: # 6, 7, 11, 13, 19 – 27 (odd), 31, 33, 35, 41, 43, 47
8	3.1: Extrema on an Interval 3.4: Concavity and the Second Derivative Test Test #2	3.1: # 17, 19, 21, 25, 27, 28, 43, 57, 58 3.4: # 5, 6, 7, 9, 17, 19, 21, 33, 35, 37, 41, 55, 56
9	3.6: Curve Sketching 3.7: Optimization Problems (Geometric) Business and Economic Applications (Appendix F)	3.6: # 31, 32, 33 (do these first!), 9, 13, 14, 15, 19, 21, 23, 28, 29, 41, 44, 51, 53, 71 3.7: # 3, 4, 6, 8, 9, 11, 13, 15, 17, 18, 19, 21, 25, 29 Appendix F: #PF5, 3, 5, 7, 9, 11, 12, 15, 18, 20, 21, 25, 29
10	3.2: Mean Value Theorem 3.9: Differentials 4.1: Antiderivatives and Indefinite Integration	3.2: # 5, 39, 42, 43, 47, 79, 83 3.9: # 5, 19, 21, 23, 26, 34, 35, 36 4.1: # 5 – 39 (odd), 49, 57, 58, 59, 63, 65
11	4.2: Area 4.5: Substitution (Indefinite Integrals) 4.3: Riemann Sums and the Definite Integral	4.2: # 5 – 13 (odd), 17 – 35 (odd), 36, 37, 39, 47, 49 4.5: # 5 – 8 (all), 9 – 33 (odd), 39, 41, 42, 43, 45, 46, 47, 53, 55, 57 4.3: # 5, 7, 9, 13, 14, 17, 19, 23, 25, 31, 39, 41, 43
12	4.4: Fundamental Theorem of Calculus 4.5: Substitution (Definite Integrals) Test #3	4.4: # 5 – 25 (odd), 29, 33, 35, 37, 39, 40, 41, 42, 45, 53, 55, 59, 75, 77, 83, 85 4.5: # 61, 63, 65, 67, 71, 72, 79
13	5.1: Natural Logarithmic Function: Differentiation 5.2: Natural Logarithmic Function: Integration	5.1: # 43 – 61 (odd), 75, 77, 79 5.2: # 5, 7, 9, 11, 18, 23, 24, 26, 27, 39, 41, 51 – 57 (odd), 60, 62
14	5.4: Exponential Functions: Differentiation and Integration 5.5: Bases other than e Review for Final Exam	5.4: # 33 – 41 (odd), 46, 61, 64, 76, 91 – 107(odd) 5.5: # 39, 61, 65, 69, 70
	Final Exam - cumulative	

LEARNING GOALS OF COURSE: Upon completion of this course, students will be able to:

- Solve equations involving trigonometric functions.
- Apply trigonometric functions to the study of periodic phenomena.
- Compute limits of functions, and use limits to determine the derivative of a function.
- Use appropriate theorems to determine derivatives of algebraic, exponential, logarithmic, and trigonometric functions, and their inverses.
- Interpret the derivative as a rate of change, and apply this interpretation to other disciplines.
- Apply the first and second derivatives to determine the slope and concavity of a graph and locate its extreme points.
- Solve optimization problems in geometry, business, and economics.
- Approximate functions locally using differentials or linearization.
- Antidifferentiate functions directly and by change of variable.
- Use the Intermediate Value Theorem and the Mean Value Theorem to analyze functions. Apply these theorems to study certain phenomena.
- Express the definite integral as the limit of a sum of products; evaluate definite integrals; and find solutions to problems that require definite integrals.

PATHWAYS LEARNING OUTCOMES: This course satisfies the Mathematical and Quantitative Reasoning requirement for the Pathways Required Core. Upon completion of this course, students will be able to:

- Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.
- Use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.
- Represent quantitative problems expressed in natural language in a suitable mathematical format.
- Effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.
- Evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.
- Apply mathematical methods to problems in other fields of study.