

Syllabus for ISL1181 (Business Mathematics I) (Gr 3)

October 4, 2022

Semester and Year of Study: Fall Term /

2022-2023 Type of the course: Required

Prerequisite: None

Language of Instruction: English

Lecturer	Dr. Gökhan Özkaya
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Course Objectives: To understand the basic methodologies and principles of elementary calculus and see how it is used in the solution of realistic problems.

Textbook:

Introductory Mathematical Analysis (for Business, Economics, and the Life and Social Sciences), 13th Edition, by Ernest F. Haeussler, Jr., Richard S. Paul and Richard J. Wood, Prentice Hall 2011.

Recommended Readings:

Barnett, Raymond A., Michael R. Ziegler, and Karl E. Byleen. Calculus for business, economics, life sciences, and social sciences, 13th Edition, Pearson Prentice Hall, 2015.

Week	Sections	Topics
1	0.1, 2.1, 2.2	Sets of real numbers. Functions. Special functions.
2	2.3, 2.4, 2.5	Combinations of functions. Inverse functions. Graphs in rectangular coordinates.
3	2.6, 2.7, 3.1, 3.2	Symmetry, Translations and reflections. Lines. Applications and linear functions.
4	3.3, 3.4, 3.5	Quadratic functions. Systems of linear equations. Nonlinear systems.
5	4.1, 4.2	Exponential functions. Logarithmic functions.
6	4.3, 4.4	Properties of logarithms. Logarithmic and exponential equations.
7	10.1, 10.2	Limits.
8	10.3, 11.1	Continuity. The derivative.
9	11.2, 11.4, 11.5	Rules for differentiation. Product and quotient rules. The chain rule.
10	12.1, 12.2	Derivatives of logarithmic functions. Derivatives of exponential functions.
11	12.4, 12.5	Implicit differentiation. Logarithmic differentiation.
12	12.7, 13.1	Higher-order derivatives. Relative extrema.
13	13.2, 13.3	Absolute extrema on a closed interval. Concavity.
14	13.4, 13.5	The second derivative test. Asymptotes.