

MATH 101 – CALCULUS I

Semester: Fall 09

Instructors: Betül Tanbay: Sections 1 and 2.
Olcaý Coşkun: Section 3.
Burak Gürel: Sections 4 and 5.

Assistants: Aysel Erey, Seçkin Demirbaş.

Exams & Grading: Mid 1–30%: November 9, Monday at 17:00.
Mid 2–30%: December 9, Wednesday at 17:00.
Final–40%: Date to be announced.

Textbook: Anton, Bivens, Davis "Calculus" 8th edition.

Week	Date	Topics	Section
1	9/29-10/1	Review: Functions. Intuitive approach to limits.	1.1, 1.3-5, 1.8, 2.1
2	10/6-8	Computing limits. Rigorous definition of limit. Trigonometric functions, continuity. Rate of change, tangent lines.	2.2-6, 3.1
3	10/13-15	Techniques of differentiation. Derivatives of trigonometric functions. Chain rule.	3.1-6
4	10/20-22	Related rates. Local linear approximation. Implicit differentiation. Increase, decrease, concavity.	3.7-8, 4.1, 5.1
5	10/27	Relative extrema. Graphing curves.	5.2-3
6	11/3-5	Absolute extrema. Applied problems. Rolle's theorem. Mean Value theorem.	5.3-5, 5.7
7	11/10-12	Indefinite integral, anti derivative. Area and definite integral as the limit of a sum. Midterm I.	6.1-2, 6.4-5
8	11/17-19	Fundamental theorem of calculus. Substitution. Area between two curves.	6.6, 6.3, 6.8, 7.1
9	11/24-26	Volumes. Arc length. Surfaces of revolution. Average value.	7.2, 7.4-6
10	12/1-3	Transcendental functions: logarithm, exponential, inverse trigonometric functions. L'hospital's rule.	6.9, 4.3-4
11	12/8-10	Integration by parts. Trigonometric integrals and substitutions. Partial fractions. Midterm II.	8.2-5
12	12/15-17	Improper integrals. Sequences. Infinite series.	8.8, 10.1-3
13	12/22-24	Convergence tests. Alternating series.	10.4-6
14	12/29-31	Taylor polynomials. Taylor and power series. Convergence of power series.	10.7-9