



Shanghai Jiao Tong University

MA081: Calculus II

Instructor:	Linghai Zhang	Email:	liz5@lehigh.edu
Instructor's Home Institution:	Lehigh University	Office:	Main Building 503
Office Hours:	Monday, Tuesday, Wednesday, Thursday: 7 – 8:30 PM		
Term:	May 27-June 27, 2019	Credits:	4 units
Classroom:	TBD	Teaching Assistant(s):	TBD
Class Hours:	Monday through Thursday, 120 minutes per teaching day		
Discussion Sessions:	2 hours each week, conducted by teaching assistant(s)		
Total Contact Hours:	66 contact hours (1 contact hour = 45 minutes, 3000 minutes in total)		
Required Texts (with ISBN):	Calculus, by James Stewart, Eighth Edition. ISBN 978-0-538-49790-9		
Prerequisite:	Calculus One		



Course Overview: Calculus Two focuses on several technical ideas for the evaluations of both definite and indefinite integrals and many applications of definite integrals, including volume of a solid obtained by rotation, arc length of a curve, area of a surface obtained by rotation, differential equations, topics related to parametric functions, topics related to polar curves, the convergence or divergence of an infinite series, radius of convergence and interval of convergence of power series.

Learning Outcomes / Course Goals: Students are expected to be able to apply integration by parts, substitution rule, partial fraction, etc, to solve many definite and indefinite integrals, including improper integrals, to be able to find the volume of solids generated by rotations about the x-axis or the y-axis, to be able to find the arc length of curves, the surface areas generated by rotations of curves, to be able to solve reasonable differential equations, to be able to judge if a series is absolutely convergent, conditional convergent or divergent.

Grading Policy

Quizzes and Homework	30 %
Midterm Examination	30 %
Final Examination	40 %

Grading Scale is as follows:

Number grade	Letter grade	GPA
90-100	A	4
85-89	A-	3.7
80-84	B+	3.3
75-79	B	3
70-74	B-	2.7
67-69	C+	2.3
65-66	C	2
62-64	C-	1.7
60-61	D	1
≤59	F (Failure)	0



Class Schedule (Subject to Change)

Date	Lecture	Chapter
Day 1	Areas between curves. Volumes. Volumes by cylindrical shells	Chapter 6.1 – 6.3
Day 2	Integration by parts. Trigonometric integrals	Chapter 7.1 – 7.2
Day 3	Trigonometric substitutions. Integration of rational functions by partial fraction	Chapter 7.3 – 7.4
Day 4	Strategy for integration. Integration using known integrals	Chapter 7.5 – 7.6
Day 5	Approximate integration. Improper integrals	Chapter 7.7 – 7.8
Day 6	Arc length. Area of a surface of revolution. Applications to physics and engineering	Chapter 8.1 – 8.3
Day 7	Separable equations. First order linear differential equations	Chapter 9.3, 9.5
Day 8	Review for midterm examination one	Chapters 6, 7, 8, 9
Day 9	The First Midterm Examination	Chapters 6, 7, 8, 9



Day 10	Curves defined by parametric equations. Calculus with parametric curves	Chapter 10.1 – 10.2
Day 11	Polar coordinates. Areas and arc length	Chapter 10.3 -10.4
Day 12	Areas and arc length of polar curves (continued)	Chapter 10.4
Day 13	Sequences. Series	Chapter 11.1 – 11.2
Day 14	The integral test and estimates of sums. The comparison tests	Chapter 11.3 – 11.4
Day 15	Alternating series. Absolute convergence	Chapter 11.5 – 11.6
Day 16	The ratio and root tests Strategy for testing series.	Chapter 11.6 – 11.7
Day 17	Power series. Representations of functions as power series	Chapter 11.8 - 11.9
Day 18	Taylor series and Maclaurin series	Chapter 11.10
Day 19	Review for the final examination	Chapters 6 - 11
Day 20	The Final Examination	Chapters 6 - 11