



Shanghai Jiao Tong University

MA081 Calculus II

Term: May 29 – June 23, 2017

Instructor: Gexin Yu

Home Institution: College of William and Mary

Email: gyu@wm.edu

Class Hours: Monday through Friday, 120 minutes each day

Discussion session: 2.5 hours each week

Total Contact Hours: 66 contact hours (45 minutes each, 3000 minutes in total)

Credit: 4 units

Course Goals

We will cover the following topics: area between curves, volumes (disk, washers, slicing), work, fluid force and pressure, substitution method of integration, integration by parts, trigonometric integrals, trigonometric substitution, partial fractions, numerical methods of integration, improper integrals, arc length, modeling with differential equations, sequences, series, various test for convergence of series, power series, and Taylor and Maclaurin series. Topics are presented with an emphasis on definitions and proofs as well as applications.

Expanded Description

We will cover three main parts in this course: evaluate integrals, applications of integrals, and series.

1. Evaluation of Integrals (Chapter 5.4, 5.5, 6.1--6.3, 6.5--6.6 from Stewart's book):

We cover Fundamental Theorem of Calculus, substitution rules and integral by parts, trig integration and substitution, partial fraction. We will cover approximation of integration and improper integrals.

2. Applications of Integrals (Chapter 7.1--7.6):

We will talk about how to use integrals to find area between curves, volumes, and arc length, as well as the applications in physics and engineering. We will also talk about some simple differential equations.

3. Series (Chapter 8.1--8.7):

We talk about series and different ways to test whether a series is convergent or not. We will also talk about power series and Taylor series.

Required Text

Essential Calculus: Early Transcendentals, Enhanced Edition (kindle ebook), by James Stewart, ISBN-10: 0538497394; ISBN-13: 978-0538497398.



Grading Policy

- ◇ Homework and quizzes: 30%
- ◇ Midterm exam: 30%
- ◇ Final exam: 40%

Your letter grade will be assigned according the following scale:

Number grade	Letter grade	GPA
90-100	A	4.0
85-89	A-	3.7
80-84	B+	3.3
75-79	B	3.0
70-74	B-	2.7
67-69	C+	2.3
65-66	C	2.0
62-64	C-	1.7
60-61	D	1.0
≤59	F (Failure)	0

Course Schedule

WEEK ONE (May 29 – June 3):

Review, 5.4, 5.5, 6.1, 6.2, 6.3,

WEEK TWO (June 5 – June 9):

6.5, 6.6, 7.1, 7.2, Midterm exam at the end of the week

WEEK THREE (June 12 – June 16):

7.3, 7.4, 7.5, 7.6, 8.1, 8.2, 8.3

WEEK FOUR (June 19 – June 23):

8.4, 8.5, 8.6, 8.7, Final exam at the end of the week

Academic Honesty

The highest standards of academic integrity are enforced for this course. You may (actually are encouraged to) work together on your homework problems, but you are allowed to get help on your quizzes or exams from your classmates or any other resources. Failure to abide the rule will result in a failing grade for your coursework.

HOMEWORK ASSIGNMENT



All of the homework problems are from the textbook:

- 5.4: 1-27 (odd)
- 5.5: 1-49 odd,34,44
- 6.1: 1-29 odd, 26, 28, 34, 39, 41
- 6.2: 1-25 (odd), 35-61 (odd)
- 6.3: 1-9 odd, 19, 21, 23, 31, 32, 35, 37, 43
- 6.5: 1,7, 9, 18, 20, 25, 30, 31
- 6.6: 1, 3, 5, 9, 11, 21, 23, 41, 43, 49
- 7.1: 1, 3, 5, 6, 11, 21, 24, 26, 27, 28
- 7.2: 1, 2, 9, 10, 11, 12, 13, 15, 21, 23, 25, 27, 29, 41
- 7.4: 1, 3, 8, 9, 12, 13, 17, 25, 27, 29
- 7.5: 1-17 odd, 18, 23-30 all (29 a-c only)
- 7.6: 1- 17odd, 21-25, 27, 31, 33, 43, 44, 46
- 7.7: 1-14 (odd), 37, 43, 45.
- 8.1: 1-35 odd
- 8.2: 1-33 odd, 6
- 8.3: 1-31 odd, 14, 18, 24
- 8.4: 1-10, 13, 14, 16, 19-33 odd, 37, 39, 41
- 8.5: 1, 2, 3, 7, 9, 13, 17, 19
- 8.6: 1, 3, 6, 7, 17, 23, 27, 31, 37
- 8.7: 1, 4, 5, 7, 13, 17, 18, 29, 31, 37, 39, 43, 47