

Math 240, Summer 2011 (First Session)

Course Information and Policies

Basic Information

Instructor: Shanshan Ding (shanshand@math.upenn.edu)
Lectures: MTWR 1:00-3:10pm in DRL 3C6
Office hours: W 3:10-4:30pm in DRL 4C11, also after class and by appointment
Extra help: Math Help Center is open MTWR 9:00am–1:00pm in DRL 4C8
Textbook: *Advanced Engineering Mathematics* by Zill & Cullen, 3rd ed
Course website: <http://www.math.upenn.edu/~shanshand/11Summer240.html>

Overview & Prerequisite

We will be studying three important topics: linear algebra, ordinary differential equations, and vector calculus. While the primary goal is to master computational techniques, i.e. the “how”, we will also explore the “why”—why do the methods work, why do we care, etc. The prerequisite is Math 114 or the equivalent.

Grading Components

Homework: 10%
Participation: 5%
Quizzes: 25%
Midterm: 25%
Final: 35%

Homework

Homework will be assigned daily. You should work on all assigned problems, but submit write-ups only for the problems marked with a *. Every Tuesday at the beginning of class, I will collect homework from the entire previous week; no late homework will be accepted. Homework will be spot graded.

Participation

In my experience both as a student and a teacher, regular attendance and participation are important for maximum learning. If you come to most lectures, pay attention, ask questions, and make an effort to answer questions that your classmates or I pose, your participation grade will be fine. For students who don't feel comfortable speaking up in class, participation can also be in the form of speaking up in office hours.

Quizzes

There will be four quizzes, given on the first, second, fourth, and fifth Thursdays of the session. Each quiz will be 20-30 minutes long, given at the beginning of the class. The quizzes are not cumulative, and no cheat sheet or calculator will be allowed. I will average only your top three quiz scores; your lowest quiz score will be rescaled and counted as bonus points on the final (details to follow later). There will be no make-up quizzes.

Exams

There will be a midterm on Monday June 13 and a cumulative final on Thursday June 30. Each exam will be two hours long. You are allowed one side of an 8.5-by-11 paper as your

cheat sheet for the midterm and both sides of an 8.5-by-11 paper for the final. Calculators are not permitted. Barring documented extraordinary circumstances, no make-up will be given for the midterm. If you miss the final for any reason, please consult the Math department office on what to do.

Remarks

- The standard grade distribution for calculus classes is 30% A's, 30% B's, 30% C's, and 10% D's and F's. If the class as a whole does well, I will give out more A's and B's. In particular, if your final weighted average is 90% or higher, you will receive a grade in the A range, regardless of what everyone else does; I will not use a curve to artificially lower your grade. No Incompletes will be given at the end of the course.
- If you wish to challenge the grading of homework problems, you must do so within one week of getting the homework back. If you wish to challenge the grading of quizzes and exams, you must do so before leaving the classroom with the graded quiz or exam. I will use Blackboard to record all scores, so please also check those and report any discrepancy to me right away.

Tentative Schedule & Important Dates

Date	Content
May 23	Introduction, §7.6 Vector spaces
May 24	§8.1-8.2 Matrix algebra, systems of linear equations
May 25	§8.3-8.5 Rank and determinant
May 26	Quiz #1 , §8.6 Matrix inverses
May 30	Memorial Day, no class
May 31	Wk 1 HW due , §8.8 Eigenvalues and eigenvectors, §8.12 Diagonalization
June 1	§3.1 Intro to ODEs, §3.3 Homogeneous ODEs with constant coefficients
June 2	Quiz #2 , §3.4 Undetermined coefficients, §3.6 Cauchy-Euler equations
June 6	§3.8 Spring/mass systems
June 7	Wk 2 HW due , §10.1-10.2 Systems of linear ODEs
June 8	Finish §10.2, §10.3 Solution by diagonalization
June 9	Review
June 13	Midterm
June 14	Wk 3 HW due , §5.1-5.2 Series solutions of ODEs
June 15	Finish §5.2, §9.1 Vector functions, §9.4-9.5 Directional derivatives
June 16	Quiz #3 , §9.6-9.7 Tangent planes and normal lines, divergence and curl
June 20	§9.8-9.9 Line integrals, independence of path
June 21	Wk 4 HW due , §9.10-9.12 Double integrals, Green's Theorem
June 22	§9.13-9.14 Surface integrals, Stokes' Theorem
June 23	Quiz #4 , §9.15-9.16 Triple integrals, Divergence Theorem
June 27	Finish §9.16, §9.17 Change of variables
June 28	Wk 5 HW due , Review
June 29	Review
June 30	Final exam