

Math 20C (Shenk). Summer, 2011.

“Most of calculus is easy once you figure it out.”

Lectures:

MWF 10:00–11:50 AM in CSB-002

Recitation sections:

Section A01: TuTh 9:00–9:50 AM, APM B412

Section A02: TuTh 10:00–10:50 AM, APM B412

Section A03: TuTh 11:00–11:50 AM APM B412

Web sites:

<http://www.math.ucsd.edu/~ashenk/> (This course)

<http://www.math.ucsd.edu/~jeggers/math20c/> (A previous Math 20C course)

Instructor:

Al Shenk (ashenk@ucsd.edu), APM 6353

Office hours: MWF 1:00–2:00 PM and by appointment

Teaching Assistants:

Nelson Townsend (ntownsend@math.ucsd.edu), APM 6414

Jon Middleton (jmiddleton@math.ucsd.edu), APM 6446

Office hours: TBA

Texts:

Calculus, Early Transcendentals Chapters 11–15 by Rogawski, First Edition (2008) — on reserve in the Geisel Library — and a supplement, “Curvature and Acceleration in the Plane”, to be distributed in class and available on line

Quizzes:

11:10–11:50 AM Monday, August 8, and Monday, August 22

Midterms:

11:00 –11:50 PM, Friday, August 12, and Friday, August 26

Final exam:

11:30 AM – 2:30 PM, Saturday, September 3

Web support:

The course web site will contain the syllabus, announcements, interactive examples, and—as they occur—lecture note outlines and quiz and examination solutions.

Quizzes and exams:

Students must work alone and use no books, notes, calculators, or other electronic devices on quizzes, midterm exams, or the final exam, and must bring picture ID's to the exams.

Grading:

Homework: 5%; Quizzes: 10%; Midterm 1: 25%; Midterm 2: 25%; Final Exam: 35%.

Homework, quiz, and exam grades will be curved. The final exam grade will replace midterm exam scores with lower grade points. A student must pass the exams to pass the course and must earn a C on exams to earn a C in the course.

Tentative schedule

Week 1

M, 8/1

Introduction to the class. Vectors and dot products. Lecture notes: Sections 12.1, 12.2, and 12.3.

W, 8/3

Cross products and equations of planes. Lecture Notes: Sections 12.4 and 12.5.

F, 8/5

Vector valued functions. Velocity vectors and speed. Lecture notes: Sections 11.1–11.2, 13.1–13.3

Week 2

M, 8/8

Curvature and acceleration in the plane. Supplement: “Curvature and Acceleration in the Plane.”
QUIZ 1 on Sections 11.1–11.2, 12.1–12.5, and 13.1–13.3. HOMEWORK 1 is due.

W, 8/10

More on curvature and acceleration in the plane.

F, 8/12

Functions of two variables and their graphs and level curves. Lecture notes: Section 14.1, Part 1
EXAM 1 on Sections 11.1–11.2, 12.1–12.5, and 13.1–13.3

Week 3

M, 8/15

Functions of two variables and their graphs. Limits, continuity, and partial derivatives.
Lecture notes: Sections 14.1, Part 2, 14.2, and 14.3. HOMEWORK 2 is due.

W, 8/17

Linear approximations and tangent planes. Directional derivative and gradient vectors.
Lecture notes: Sections 14.4–14.5.

F, 8/19

First- and second-derivative Tests for maxima and minima.
Lecture notes: Section 14.7, Parts 1 and 2.

Week 4

M, 8/22

Lagrange multipliers. Lecture notes: Section 14.8.
QUIZ 2 on curvature and acceleration in the plane and Chapter 14. HOMEWORK 3 is due.

W, 8/24

Double integrals. Lecture notes: Sections 15.1–15.2

F, 8/26

More on double integrals. EXAM 2 on curvature and acceleration in the plane and Chapter 14.

Week 5

M, 8/29

Triple integrals. Integrals in polar, cylindrical, and spherical coordinates.
Lecture notes: Sections 15.3–15.4.

W, 8/31

Review. HOMEWORK 4 is due.

F, 9/2

Review.

S, 9/3

Final exam, 11:30 AM – 2:30 PM