

Study Guide and Take Home Final Exam

MATH 4560 Professor Chicone Fall 2004

The final exam will be held in our classroom on Thursday, Dec. 16 during 10:30–12:30 P.M.

The final exam will be comprehensive. I will write an exam that is about the same length as our in-class exams. You will have two hours to finish the final.

In addition, there is a take home part of the final exam as follows:

1. Write up and hand in problems 10.1.12, 10.1.13, 11.3.2.
2. The remaining portion of the take home part is computer experiments taken from Chapter 12, which we did not go over in class. But, you do not need to know any theoretical results from Chapter 12 to do these experiments.
 - (a) Reproduce Figure 12.2.3 (a) and (b).
 - (b) Reproduce Figure 12.5.6.
 - (c) Do Problem 12.1.9.

This is to be handed in at the time of the final exam.

Study Guide

Refer to the previous study guides for the material from before the last exam.

- Ch. 10** Our classroom discussion did not follow the book closely, but we discussed many of the topics mentioned in the book. Study your class notes. Be sure to understand the idea of a map as a dynamical system. Be able to find fixed points and periodic points, and be able to discuss their stability. Be ready to answer questions about the quadratic family (period doubling). Be ready to discuss the tent map and its chaotic dynamics.
- Ch. 11** The main idea here is the notion of dimension. Be familiar with the similarity dimension, and be able to compute the similarity dimensions of self similar fractals. Make sure you understand the basic ideas about Cantor sets. Also, it would be a good idea to understand the basic notions concerning countable and uncountable sets.