

FINAL STUDY GUIDE

MATH 5051, FALL 2018

Material. The final will be on the material in the second half of the course. For the most part, that means sections 2.4, 2.5, 2.6, 3.1, and 3.2, but there are a couple additional topics that we discussed after the midterm. We covered part of section 2.3 after the midterm, namely the relationship between the Lebesgue integral and the Riemann integral, as well as the parenthetical remark on page 58 which led us to chapter 5 where we proved Theorem 5.1. We also covered parts of sections 1.1 and 2.1 after the midterm as prerequisite material for product measures in 2.5. These topics are all fair game. Conversely, in section 2.6, we did not discuss Jordan content, so this topic will not be on the final.

While the final will not be explicitly cumulative, keep in mind that the material itself is very cumulative. As a consequence, familiarity with the material from the first half of the course will be important, even though it won't be explicitly tested.

Study suggestions. My recommendation is to study by writing down a problem you think would be a reasonable problem for the exam, closing your book, solving it, checking your work, and fixing any mistakes. If you solve it easily, set that topic aside; if you have trouble, do additional problems on that topic, or let some time pass and then try the same problem again.

Problem sources. Here are some good sources of problems that you should use while studying (and I'll use while writing the exam).

- Stating definitions, theorems with names, or properties with names.
- Proving things we proved in class. Keep in mind length: If a claim takes more than 15 minutes to prove, it's probably too complex for the exam. Maybe there's a lemma or a portion of the proof that's short enough and self-contained.
- Counterexamples. Counterexamples are in some sense a mnemonic device for remembering when something works and when it doesn't.
- Homework problems. Again, keep in mind length. If it's too long, it won't be on the exam, unless there's a self-contained piece that's shorter.
- Other textbook problems or problems from the supplementary textbook. If a topic is causing a lot of trouble, doing the same homework problem over again will be limited in its usefulness; you might want to try something new for extra practice.

Resources.

- I have office hours scheduled before the exam; if those times don't work for you, send me an email and we can schedule something, or send me an email with a question and I can try to answer it.
- Your classmates.
- The posted homework solutions.
- The textbook.
- The supplementary textbook (downloadable from Blackboard).