

MIDTERM STUDY GUIDE

MATH 5051, FALL 2018

Material. The midterm will cover Chapter 1 and Chapter 2 up to and including Theorem 2.26 in Section 2.2. Some of those topics rely on background material in Chapter 0. A major topic that we skipped is the product σ -algebra, which appears in both Section 1.2 and Section 2.1. (We'll discuss these topics when we get to Section 2.5 on product measures.)

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 Wednesday and Thursday 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).