Information and Suggestions for the Final Exam

General Comments: The exam covers the whole course, but more than a third of it will be on Chapter 16. So review the whole course, but put a bit more emphasis on Chapter 16. That said, even the Chapter 16 stuff requires material from many earlier sections.

Remember, the exam will be:

Thursday, December 19, 9am–noon, Seeley Mudd 206

“Cheat Sheet”: You may bring one standard (8.5x11) sheet of notes to the exam. You may use both sides of the piece of paper, but it must be in your own handwriting. (No photocopies of other students’ sheets, for example.)

Writing things out is a good study technique, and it helps burn things into your brain. If you take the time to make a careful cheat sheet, you may find that you end up not using the cheat sheet at all during the exam, except maybe to confirm you remembered something right.

More things you don’t need to know: On each of the four review sheets, I listed a bunch of things you don’t need to know. You still don’t need to know those things, but in addition, you don’t need to know the following topics that were required for earlier exams:

- Section 12.6: General quadric surfaces. You don’t need to be able to graph all these crazy surfaces. However, for doing triple integrals and surface integrals, I do expect you to be able to work with and sketch elliptic paraboloids (like \( z = x^2 + y^2 \) or \( y = 4 - x^2 - z^2 \)) and cylinders (whether circular like \( x^2 + z^2 = 9 \), or parabolic like \( y = z^2 \), or any other kind of cylinder).

- Section 13.3: Arclength.

- Section 14.2: The epsilon-delta definition of limits. (But you DO still need to be able to show a multivariable limit diverges, for example.)

- Section 14.4: The official definition of multivariable differentiability. (But you DO still need to know the limit definition of partial derivatives and directional derivatives.)

- Sections 15.4 and 15.6: Moments and center of mass. (But you DO still need to know how to compute mass, and how to do the various other things in these sections that you had to know for Exam 3.)

Major Tip: Obviously you need to spend a lot of time on your other courses, too. But make sure to do some math every day between now and the final exam. On the other side of this handout is one possible study plan. I would strongly recommend you follow it or something similar.
A Possible Study Plan

Wednesday, Dec 11: Take a study break at the Math/Stat Department end-of-semester Cake Party (3:15–4:45pm, Seeley Mudd 207). That evening, review Chapter 12.

Thursday, Dec 12: Review Chapter 13 and Sections 16.1–16.3. Review Midterm Exam 1 (including practice problems and the exam itself). Write down things from Chapters 12–13 that you may want on your cheat sheet.

Friday, Dec 13: Review Chapter 14 and Sections 16.4–16.5. Review Midterm Exam 2 (including practice problems and the exam itself). Do the first page of the “Practice Problems for the Final Exam.” Find Seeley Mudd 206, so you know where the exam will be.

Saturday, Dec 14: Review Chapter 15 and Sections 16.6–16.10 (skipping 16.8). Review Midterm Exam 3 (including practice problems and the exam itself). Write down things from Chapters 14–15 that you may want on your cheat sheet. Do the second page of the “Practice Problems for the Final Exam.”

Sunday, Dec 15: Write down things from Chapter 16 that you may want on your cheat sheet. Review Chapters 12–14 and any problems from Midterm Exams 1–2 (or their practice problems) that ever gave you trouble. Re-do the “Practice Problems for the Final Exam”.

Monday, Dec 16: Take the Fall 2016 Final Exam, skipping problem 5a. After you are done, check your answers against the solutions posted on the website. Review Chapters 15–16 and any problems from Midterm Exam 3 (or its practice problems) that ever gave you trouble. Write your cheat sheet.

Tuesday, Dec 17: Take the Fall 2017 Final Exam, skipping problem 8; work on improving your time management. After you are done, check your answers against the solutions posted on the website. Go back through all three midterms exams and the first three sheets of Practice Problems, focusing on any problems that ever gave you trouble. Review and check your cheat sheet.

Wednesday, Dec 18: Take the Fall 2018 Final Exam. Do this under test-conditions: sitting at a desk, no breaks, with a time limit of 3 hours. After you are done, check your answers against the solutions posted on the website. Review all four “What you need to know” review sheets, as well as any problems from the “Practice Problems for the Final” that gave you trouble. Review the whole course, especially Chapter 16.

GO TO BED EARLY. Set extra alarms so you are up on time, and put your phone (or other alarm) out of reach and behind a stack of books, so you can’t switch it off in your sleep. (Behind stuff, not buried; you need to hear it when it goes off!)

Thursday, Dec 19: Get yourself to Seeley Mudd 206 early enough that you can be FULLY SETTLED by 8:55am. That is, have writing implements, water, last-minute bathroom run, etc. all taken care of BEFORE 8:55am.

Course Webpage: https://rlbenedetto.people.amherst.edu/math211/

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Seeley Mudd 206