MA635 Fall 2018. Syllabus

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Class meets on Thursdays 6:15–8:45 in Pierce 116.

If you have documented disabilities, please contact SCADS to arrange learning accommodations.

Recommended textbook: Royden, Fitzpatrick "Real Analysis."
Additional reading: Kolmogorov, Fomin "Elements of the Theory of Functions and Functional Analysis" (vol.2). (Avoid Silverman's "translation.")

In general, for up to date information about the course, check Canvas or the webpage `http://personal.stevens.edu/~anikolae/teaching/`
The latter webpage mostly will just have the link to Canvas and previous years' materials for your reference.
Your more or less up to date grades will be available on Canvas.

Course grade (there will be no "curving"):

$$50\% \text{ Homework} + 50\% \text{ (Final + Midterm)}$$

Homework:

- There will be (generally) one homework assignment every week. All homework assignments are worth the same in terms of the course grade, unless specified in an assignment sheet. Your lowest homework grade will be discarded from the course grade.
- Assignments will be posted on Canvas on Thursday after the class or on Friday morning, to he handed in the following Thursday at the *beginning* of the class. If you will need a hard copy, let me know, I'll do something.
- Collaboration on homeworks is welcome. If you do collaborate, please make sure to write your own paper and credit the person you collaborated with.
- **Extensions:** During this course, on each homework you are allowed to take one one-week no-questions-asked extension, with two restrictions:
  - you cannot take extensions twice in a row. E.g. if you take an extension on HW4, you cannot take extension on HW5, cannot have taken extension on HW3, and cannot have yet another week for HW4.
  - there will be no extensions granted past end of classes date, December 7.

  Extensions for valid reasons (= recognized by Stevens officials, like sickness, official athletics, etc) are separate from the above.
- **Solutions:** I will be issuing solutions to some homework problems.

Midterm and Final :

- There will be a Midterm exam. Most likely, it will be scheduled in addition to regular classes.
- The Final will be in-class, as scheduled by Stevens.
- Both will be closed book. The Final will only cover the material after the Midterm.

- If you get 70% or less (this value may change a bit) on Midterm or Final, you can retake that paper! The catch: your grade for the paper you are retaking will be capped at the lowest grade in class above 70%. The time range to retake the paper is to be determined, but expect that for the Final it will be short, around 3 days.

Canvas:

- All relevant information (assignments, announcements, solution, more or less up to date grades) will be published on Canvas.
- I removed as much garbage from Canvas as I could. If you would like any specific functionality re-enabled (like, say, Discussions), please let me know.

General rule:

If you misunderstand something, it is your problem. I, on the other hand, will do my best to be unambiguous about everything, but experience shows there are always ways that I haven't thought of.

Corollary of the general rule: *If you are unsure about something, please ask me.*

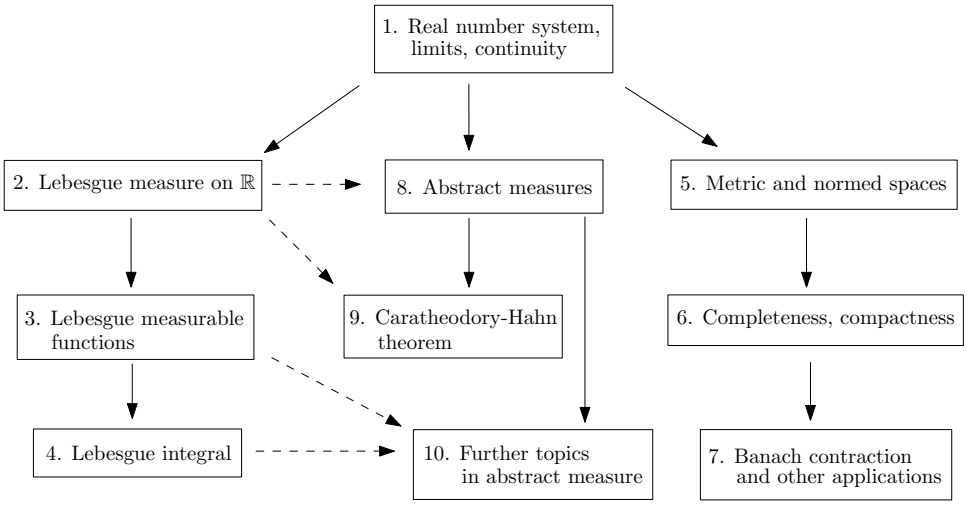
Further Details

Schedule. The Midterm will take place around the end of October, the exact date to be decided.

Note that there will be no class on November 22 (Thanksgiving). Deadlines that fall on that date are automatically postponed by one week.

If a class is cancelled due to weather conditions, then most likely the lecture will still take place at the usual time but online, via Blackboard Collaborate. That will be announced separately.

Dependence diagram for the course material. A detailed list of topics comes in a separate document.



"A→B" means B requires A. "A⇢B" means that, strictly speaking, there is no dependence, but understanding A helps to understand B.

Note that the above diagram is tentative. Depending on how the first few classes go, we may get into differentiation after we are done with Lebesgue integral.

Some questions and answers.

Q: *Will there be lecture notes?*
A: There may be some brief notes issued after lectures. They wouldn't be intended to replace your notes. Also note that, for the most part, I will be following the textbook rather closely.

Q: *Do I really need to have the textbook?*
A: Short: It depends.
Long: I try to organize the course so that you can manage without one, assuming you attend classes, have adequate math background, take lecture notes, and do HW on time. In particular, homework assignments will be typed out (rather than "Exercises 2.4.1–2.4.8"). However, the textbook is more thorough and comprehensive than lectures can ever be, so it still may be a good idea to get the book.

Q: *Can I use a different textbook instead of the recommended one?*
A: Yes, but there may be differences in exposition of material, so it may take an additional effort to "translate" between what is presented in class and expected in HW and what is offered in your book.

One thing to keep in mind: a textbook titled "Real Analysis" or some such may be about two different branches of math (either "classical" analysis with ε-δ machinery and such, or this course). You want the kind that has a lot of the words "measure" and "Lebesgue" in the table of contents. Show me your book for a more detailed answer.

Q: *I am taking the course without having taken the prerequisite, will I be OK?*
A: I don't know. It depends on your math maturity and background. It could be that you won't be able to keep up despite your best effort, or that you will have no difficulty whatsoever, or anything in between. What you can do is take a look at previous years' materials on the webpage listed above to get an idea of the course level.

Q: *I have difficulty with material, is it OK to ask you for help?*
A: Yes, please do! However, please keep in mind that while I will make an effort to help you, (1) I cannot offer actual tutoring and (2) my idea of help may be different from yours.

Q: *I would like to meet to ask questions or get some help with the course, can I just drop by your office?*
A: During office hours (if I end up scheduling any), yes, absolutely.
Outside office hours, still yes, but if you do that, there is a good chance I'll be away or busy. It is much better to contact me through email to schedule a meeting. The longer notice the better chance I will accommodate, but usually even half a day notice is fine.

Q: *I did poorly on exams or homeworks, is there any extra work I can do to improve my grade, besides what is listed in this syllabus?*
A: You can retake Midterm and Final as described above. Other than that, no extra work.

Q: *Homework has Extra Problems. How do they work?*
A: They are there for your enjoyment. Some are hard, some are easy. You can and are welcome to submit solutions (in which case, you will receive a binary answer, correct or not, and a short explanation), but those problems will be worth 0 in terms of course grade. You are also welcome to use any sources you like when you work on them (but it is more fun to solve them than read a solution).

Q: *I have a question not covered here!*
A: Please contact me with your question.