

Course 18 Underground Guide

A CoMM + UMA Production

Fall 2020

Hi everybody! This is a pilot of the Course 18 Underground Guide, featuring 18.100B, 18.600, and 18.701. We added questions to the subject evaluations and condensed the responses into the evaluations below.

Please note that the 2020-2021 year was unusual due to the coronavirus pandemic. The information here may not reflect normal years, since many instructors were forced to change lecture and exam formats, grading schemes, and other aspects of math instruction.

Thanks to Andrew Lin for providing this \LaTeX template. We love you, Andrew!

Subjects Evaluated

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1 18.100B Real Analysis

Q: are we the rationals? bc it's time to get REAL dense.

Course Info

Class size: 52

Hours/week: 8.9 (31 responses)

Instructors:

- Tobias Colding (Lecturer)
- Katie Gravel (Undergraduate Assistant)
- Andrew Y. Lin (Undergraduate Assistant)

Realistic Prerequisites (10 responses)

- Mathematical maturity: some prior proof-writing experience (perhaps via the IAP proofs workshop or another course with a focus on proof-writing) is highly recommended, as the learning curve is quite steep.
- Knowledge of calculus in a single variable is essential (perhaps also calculus in several variables, but this is more of a soft prereq).

Subject Matter (7 responses)

- Theoretical, broad and deep, abstract. Could have been even more abstract, though: tended to focus mainly on \mathbb{R} rather than \mathbb{R}^n or a more general metric space.
- The skills gained (i.e. formulating proofs with a high level of rigor) might be more important than much of the subject matter itself.
- Some students thought that the course moved a bit too slowly.

Course Staff (7 responses)

- Approachable, very open to questions, and accommodating of extenuating circumstances.
- Both the professor and the TAs were caring and helpful.

Lectures (7 responses)

- Many students learned the most from the problem sets and from the TA's office hours, rather than from lectures.
- Students tended to use the textbook as a secondary resource when confused about parts of lectures.
- Lectures were engaging and had good examples; the professor addressed all student questions.

Problem Sets (8 responses)

- Challenging, but generally doable.
- Problems tended to be straightforward rather than requiring creativity.
- Lectures generally prepared students well for the psets.

Exams (8 responses)

- Many students found timing to be an issue.
- The problems were on par with the psets difficulty-wise.
- Solving psets and knowing critical facts from lecture was helpful.
- Many students found the exams stressful and discouraging, primarily due to a mismatch of difficulty level with time allotted.

Resources (7 responses)

- Two textbooks (Rudin and TBB); it was nice to have two perspectives on the material.
- Some students found Rudin to be much more useful than class.
- It would've been nice to have lecture notes posted.

Grading (7 responses)

- Grade cutoffs were not publicized
- Students generally felt that grading was fair and consistent.
- "The professor seems to expect most people to get Bs and As."

Advice for Future Students (7 responses)

- "I think it's better for them to practice proof-writing before taking this class, or at least have an idea of how to write rigorous proofs. Also, they should ask themselves, "Do I really want to learn how real numbers are constructed, and calculus is formed?" If yes, then they should take the class."
- "It is very rigorous! It can be a bit annoying, but it is a necessary challenge."

2 18.600 Probability and Random Variables

Probably take this

Course Info

Class size: 201

Hours/week: 7.5 (83 responses)

Instructors:

- Jonathan Adam Kelner (Lecturer)
- Pranit Nanda (Undergraduate Assistant)
- Jie Jun Ang (Recitation Instructor)
- Jonathan Tidor (Recitation Instructor)
- Roger Van Peski (Recitation Instructor)

Realistic Prerequisites (14 responses)

- Necessary: 18.01/18.02.
- Helpful: 18.06 for Markov chains, some exposure to proofs perhaps via 6.042, some basic probability/discrete math.

Subject Matter (14 responses)

- Many thought the class was very applied, but some felt it was more abstract than expected.
- Very foundational, broad, and useful.
- The first few weeks were a review of basic probability. People with prior exposure found them slow, while others found them fast.

Course Staff (13 responses)

- Students found the course staff caring and understanding (e.g. midterm was moved due to election).
- TAs were helpful and responsive on Piazza.

Lectures (14 responses)

- Students found that the lectures were well-organized and engaging, contained helpful real-world examples, and connected to the psets.
- Students generally found the class well-paced; a few students found it slow.
- Lectures were asynchronous, supplemented by live problem-solving sessions.

Problem Sets (13 responses)

- Students found the psets doable and fair, since the lectures adequately prepared them.
- Many students worked with others.
- Time spent on psets varied wildly. Some spent 3 hours, while others spent 12.

Exams (14 responses)

- Students generally appreciated exam format and time given.
- Most students found exam difficulty fair. Some students found the exams challenging.

Resources (9 responses)

- The lectures were self-contained. Lecture slides were made available.
- Most students did not use the textbook.
- There was a class Piazza, and it was good.

Grading (11 responses)

- Professor gave (course or test?) cutoff approximations after the second exam but prior to Drop Date.
- Grading was fair and transparent (e.g. grade cutoffs for quizzes were given).

Advice for Future Students (6 responses)

- “Don’t underestimate the class based on the first few weeks. The class goes from 0-100. Don’t get complacent.”
- “Familiarity with writing proofs did come in handy and no guidance was provided in that respect, so it helped to have taken 6.042 before. Reading a chunk of the optional textbook definitely helped lower the mental workload when covering that material.”
- “make sure you understand probability, you will see it everywhere”

3 18.701 Algebra I

[Algebra I]

Course Info

Class size: 118

Hours/week: 11.0 (61 responses)

Instructors:

- Bjorn Poonen (Lecturer)
- Merrick H. Cai (Undergraduate Assistant)

Realistic Prerequisites (19 responses)

- Proof experience and mathematical maturity are extremely important. This is where the 18.100B soft prereq is most useful.
- It is helpful to have some background in linear algebra (18.06 material).

Subject Matter (14 responses)

- Students thought the content was very cool.
- Course content was very theoretical and abstract, covering fundamentals of algebra and going deep into proofs.
- Students wanted more applications out of the class.

Course Staff (13 responses)

- Course staff was very approachable, understanding, and helpful.
- Professor Poonen and the TA's showed legitimate interest in student's questions.

Lectures (9 responses)

- The subject lectures covered all learning objectives.
- Many students, however, felt discomfort asking questions live during lectures.
- The pace of the class was marked in between "just right" and "too fast".

Problem Sets (19 responses)

- Many were content with the problem set and the rigor of it.
- Many felt comfortable asking questions on the problem set to the TAs.
- Students generally found the psets fun, challenging, and interesting.
- Many found collaboration absolutely necessary.

Exams (7 responses)

- Instead of exams, there were weekly open-book/open-Google quizzes. Many students found this format less stressful than traditional exams.
- The quizzes were fair and covered the materials learned in class.

Resources (8 responses)

- The textbook by Artin is great, and actually reading it helped a lot.
- Math Stack Exchange and Andrew Lin's 18.701 notes online also helped some.

Grading (10 responses)

- Grading was fair and transparent, and some even thought it was pretty generous.
- 85% of the grade was from psets, and 15% was from the quizzes.
- 90% guaranteed an A- or above, 80% a B-, 70% a C-.

Advice for Future Students (9 responses)

- "textbook, pretty spicy"
- "proofs. HAVE A PSET PARTNER"
- "Read the textbook, for sure. Also, watching the first couple of lectures during Summer before the course is super helpful since this class goes quite fast (coming from someone who has some proof experience, but did not take 100A/100B)."
- "Work on psets with other students, absolutely. It's easy to make false assumptions or errors in logical reasoning, and discussing the material of the pset (not just the questions themselves, but even facts that are 'unrelated' to the questions) with others can illuminate lots of these mental lapses."