

What classes should I take as a full-time RA?

Anthony Lee Zhang

Here's a summary of some advice I've given RAs at Booth on class taking strategy. See also my related [guide](#) which is tuned more towards undergrads, and towards which math classes to take

If you're an RA at Booth, you can take one class per quarter. You have a year before applications are due, so essentially you get 3-4 classes. Here's what I think about how to optimally spread these out.

- If you haven't taken undergrad real analysis, and don't feel confident skipping it and doing a harder math class, take it and do your best to get an A. This is essentially a hard requirement for admission to a top econ/finance PhD program nowadays.
- If you feel confident taking ``hard'' real analysis -- graduate 1st year functional analysis or measure theoretic probability theory -- this is a relatively standardized ``good signal''. See discussion [here](#) about why I think this is the best option among math classes.
- I think first year economics grad classes are a fairly good signal, especially micro and metrics (macro seems a bit less standardized across schools so may be a bit harder to interpret). Micro and metrics are relatively standardized across schools and fairly hard, so getting an A in these is a reasonably good signal.
- I * believe * first year PhD asset pricing has a similar effect to first year PhD economics classes (if you're going for finance programs, of course) but I haven't actually taken these, so I'm not sure
- Second year econ/finance grad classes are different; these are often actually easier than 1st year classes and have less coursework/problem sets, because they're designed to get you up to the research frontier. Even if they are hard, admissions committees may not be able to tell. These are fun to take, but I'd suggest auditing them instead of taking them.
- Take the hardest classes that you're confident you can get an A or at least A- in -- anything lower is a negative signal.
- A more ``fun'' option which I think still has signal value is to take a ``hard'' machine learning class. This has a ``cool'' factor and is hard enough to maintain signal value.
- So a reasonable set of three courses I'd suggest is (in no particular order):
 - a. First year PhD micro/metrics/asset pricing
 - b. First year math/stats PhD functional analysis/probability theory
 - c. Either one more from a. Or b., or some machine learning class

Some people have asked: how do I know if I can handle first-year PhD classes? A simple way is to skim through the common textbooks and see whether they're at a level you can deal with.

Here are some of the common books used, from what I know (could be slightly outdated info):

- Micro: Jehle & Reny, Varian Microeconomic Analysis (NOT the undergrad book) are on the slightly easier side. Mas-Collel, Whinston, Green on the slightly harder side: you shouldn't expect to be able to easily work through all of it.

- Macro: Stokey, Lucas, and Prescott is a good benchmark for math level. Sargent and Ljungqvist is a bit harder. I think there's some variation in what's taught in different programs, but the math level is roughly set by these books, I think.
- Metrics: I used Hayashi's econometrics book, but I think this is slightly old-fashioned now. Bruce Hansen's book is good: <https://www.ssc.wisc.edu/~bhansen/econometrics/>
- So you can take a look at these to get a sense whether your math background is sufficient for taking these classes.

Caveats, copped from my other guide:

- There are many ways to get into an econ PhD program besides taking advanced math classes, especially if you're interested in doing less math-heavy fields. This document is purely directed at, if you're in a position where you want to take hard math classes for their signal value, what is in my opinion the optimal way to do so.
- These suggestions are purely about my view on maximizing your admissions chances. This is of course not necessarily the optimal strategy for your education/future paper writing success/happiness and intellectual satisfaction/quality of life/etc. Those are separate questions!
- I haven't yet been directly involved in making admissions decisions so you shouldn't interpret this document as representing "insider information" in any sense