

QUARTZ

GIFT

The complete guide to getting into an economics PhD program

Miles Kimball & Noah Smith | August 16, 2013



📷 The math is easier than you might think. (Reuters/Toru Hanai)

Back in May, Noah wrote about [the amazingly good deal](#) that is the PhD in economics. Why? Because:

1. **You get a job.**
2. You get autonomy.
3. You get intellectual fulfillment.
4. The risk is low.
5. Unlike an MBA, law, or medical degree, you don't have to worry about paying the sticker price for an econ PhD: After the first year, most schools will give you teaching assistant positions that will pay for the next several years of graduate study, and some schools will take care of your tuition and expenses even in the first year. (See [Miles's companion post](#) for more about costs of graduate study and how econ PhD's future earnings makes it worthwhile, even if you can't get a full ride.)

Of course, such a good deal won't last long now that the story is out, so you need to act fast! Since he wrote [his post](#), Noah has received a large number of emails asking the obvious follow-up question: "How do I get into an econ PhD program?" And Miles has been asked the same thing many times by undergraduates and other students at the University of Michigan. So here, we present together our guide

By using this site, you agree to our use of cookies. Please read our [privacy policy](#). [Accept](#)

(Note: This guide is mainly directed toward native English speakers, or those from countries whose graduate students are typically fluent in English, such as India and most European countries. Almost all highly-ranked graduate programs teach economics in English, and we find that students learn the subtle non-mathematical skills in economics better if English is second nature. If your nationality will make admissions committees wonder about your English skills, you can either get your bachelor's degree at a—possibly foreign—college or university where almost all classes are taught in English, or you will have to compensate by being better on other dimensions. On the bright side, if you *are* a native English speaker, or from a country whose graduate students are typically fluent in English, you are already ahead in your quest to get into an economics PhD.)

Here is the not-very-surprising list of things that will help you get into a good econ PhD program:

- good grades, especially in whatever math and economics classes you take,
- a good score on the math GRE,
- some math classes and a statistics class on your transcript,
- research experience, and definitely at least one letter of recommendation from a researcher,
- a demonstrable interest in the field of economics.

Chances are, if you're asking for advice, you probably feel unprepared in one of two ways. Either you don't have a sterling math background, or you have quantitative skills but are new to the field of econ. Fortunately, we have advice for both types of applicant.

If you're weak in math...

Fortunately, if you're weak in math, we have good news: *Math is something you can learn*. That may sound like a crazy claim to most Americans, who are raised to believe that math ability is in the genes. It may even sound like arrogance coming from two people who have never had to struggle with math. But we've both taught people math for many years, and we really believe that it's true. Genes help a bit, but math is like a foreign language or a sport: effort will result in skill.

Here are the math classes you absolutely should take to get into a good econ program:

- Linear algebra
- Multivariable calculus
- Statistics

Here are the classes you should take, but can probably get away with studying on your own:

- Ordinary differential equations
- Real analysis

Linear algebra (matrices, vectors, and all that) is something that you'll use all the time in econ, especially when doing work on a computer. Multivariable calculus also will be used a lot. And stats of course is absolutely key to almost everything economists do. Differential equations are something you will use

probably never use in real econ research, but which the economics field has decided to use as a sort of general intelligence signaling device.

If you took some math classes but didn't do very well, don't worry. **Retake the classes.** If you are worried about how that will look on your transcript, take the class the first time "off the books" at a different college (many community colleges have calculus classes) or online. Or if you have already gotten a bad grade, take it a second time off the books and then a third time for your transcript. If you work hard, every time you take the class you'll do better. You will learn the math and be able to prove it by the grade you get. Not only will this help you get into an econ PhD program, once you get in, you'll breeze through parts of grad school that would otherwise be agony.

Here's another useful tip: **Get a book and study math on your own** before taking the corresponding class for a grade. Reading math on your own is something you're going to have to get used to doing in grad school anyway (especially during your dissertation!), so it's good to get used to it now. Beyond course-related books, you can either pick up a subject-specific book (Miles learned much of his math from studying books in the [Schaum's outline series](#)), or get a "math for economists" book; regarding the latter, Miles recommends [Mathematics for Economists](#) by Simon and Blume, while Noah swears by [Mathematical Methods and Models for Economists](#) by de la Fuente. When you study on your own, the most important thing is to *work through a bunch of problems*. That will give you practice for test-taking, and will be more interesting than just reading through derivations.

This will take some time, of course. That's OK. That's what summer is for (right?). If you're late in your college career, you can always take a fifth year, do a gap year, etc.

When you get to grad school, you will have to take an intensive math course called "math camp" that will take up a good part of your summer. For how to get through math camp itself, see [this guide by Jérémie Cohen-Setton](#).

One more piece of advice for the math-challenged: **Be a research assistant on something non-mathy.** There are lots of economists doing relatively simple empirical work that requires only some basic statistics knowledge and the ability to use software like Stata. There are more and more experimental economists around, who are always looking for research assistants. Go find a prof and get involved! (If you are still in high school or otherwise haven't yet chosen a college, you might want to choose one where some of the professors do experiments and so need research assistants—something that is easy to figure out by studying professors' websites carefully, or by asking about it when you visit the college.)

If you're new to econ...

If you're a disillusioned physicist, a bored biostatistician, or a neuroscientist looking to escape that evil Principal Investigator, don't worry: *An econ background is not necessary.* A lot of the best economists started out in other fields, while a lot of undergrad econ majors are headed for MBAs or jobs in banks. Econ PhD programs know this. They will probably not mind if you have never taken an econ class.

That said, you may still want to **take an econ class**, just to verify that you actually like the subject, to start thinking about econ, and to prepare yourself for the concepts you'll encounter. If you feel like doing this, you can probably skip Econ 101 and 102, and head straight for an Intermediate Micro or Intermediate Macro class.

Another good thing is to **read through an econ textbook.** Although economics at the PhD level is mostly about the math and statistics and computer modeling (hopefully getting back to the real world

mathy parts of economics from one of the well-written lower-level textbooks (either one by [Paul Krugman and Robin Wells](#), [Greg Mankiw](#), or [Tyler Cowen and Alex Tabarrok](#)) and maybe one at a bit higher level as well, such as David Weil's [excellent book on economic growth](#)) or Varian's *Intermediate Microeconomics*.

Remember to **take a statistics class**, if you haven't already. Some technical fields don't require statistics, so you may have missed this one. But to econ PhD programs, this will be a gaping hole in your resume. Go take stats!

One more thing you can do is **research with an economist**. Fortunately, economists are generally extremely welcoming to undergrad RAs from outside econ, who often bring extra skills. You'll get great experience working with data if you don't have it already. It'll help you come up with some research ideas to put in your application essays. And of course you'll get another all-important letter of recommendation.

And now for...

General tips for everyone

Here is the most important tip for everyone: **Don't just apply to "top" schools**. For some degrees—an MBA for example—people question whether it's worthwhile to go to a non-top school. But for econ departments, there's no question. Both Miles and Noah have marveled at the number of smart people working at non-top schools. That includes some well-known bloggers, by the way—Tyler Cowen teaches at George Mason University (ranked [64th](#)), Mark Thoma teaches at the University of Oregon (ranked [56th](#)), and Scott Sumner teaches at Bentley, for example. Additionally, a flood of new international students is expanding the supply of quality students. That means that the number of high-quality schools is increasing; tomorrow's top 20 will be like today's top 10, and tomorrow's top 100 will be like today's top 50.

Apply to schools outside of the top 20—any school in the top 100 is worth considering, especially if it is strong in areas you are interested in. If your classmates aren't as elite as you would like, that just means that you will get more attention from the professors, who almost all came out of top programs themselves. When Noah said in his earlier post that econ PhD students are virtually guaranteed to get jobs in an econ-related field, that applied to schools far down in the ranking. Everyone participates in the legendary [centrally managed econ job market](#). Very few people ever fall through the cracks.

Next—and this should go without saying—**don't be afraid to retake the GRE**. If you want to get into a top 10 school, you probably need a perfect or near-perfect score on the math portion of the GRE. For schools lower down the rankings, a good GRE math score is still important. Fortunately, the GRE math section is relatively simple to study for—there are only a finite number of topics covered, and with a little work you can "overlearn" all of them, so you can do them even under time pressure and when you are nervous. In any case, you can keep retaking the test until you get a good score (especially if the early tries are practice tests from the GRE prep books and prep software), and then you're OK!

Here's one thing that may surprise you: **Getting an econ master's degree alone won't help**. Although master's degrees in economics are common among *international* students who apply to econ PhD programs, American applicants do just fine without a master's degree on their record. If you want that extra diploma, realize that once you are in a PhD program, you will get a master's degree automatically after two years. And if you end up dropping out of the PhD program, that master's degree will be worth more than a stand-alone master's would. The one reason to get a master's degree is if it can help you remedy a big deficiency in your record, say not having taken enough math or stats classes, not having

recognize to write you a letter of recommendation.

For getting into grad school, much more valuable than a master's is **a stint as a research assistant in the Federal Reserve System or at a think tank**—though these days, such positions can often be as hard to get into as a PhD program!

Finally—and if you're reading this, chances are you're already doing this—**read some econ blogs**. (See Miles's speculations about the future of the econ blogosphere [here](#).) Econ blogs are no substitute for econ classes, but they're a great complement. Blogs are good for picking up the lingo of academic economists, and learning to think like an economist. Don't be afraid to *write* a blog either, even if no one ever reads it (you don't have to be writing at the same level as [Evan Soltas](#) or [Yichuan Wang](#)); you can still put it on your CV, or just practice writing down your thoughts. And when you write your dissertation, and do research later on in your career, **you are going to have to think for yourself outside the context of a class**. One way to practice thinking critically is by critiquing others' blog posts, at least in your head.

Anyway, if you want to have intellectual stimulation and good work-life balance, and a near-guarantee of a well-paying job in your field of interest, an econ PhD could be just the thing for you. Don't be scared of the math and the jargon. We'd love to have you.

Update: Miles's colleague Jeff Smith at the University of Michigan [amplifies many of the things](#) we say on his blog. For a *complete* guide, be sure to see what Jeff has to say, too.

Follow Miles on Twitter at [@mileskimball](#). Follow Noah at [@noahpinion](#). We welcome your comments at ideas@qz.com.