

So you're thinking of going to graduate school in economics?

Graduate programs are trying to balance two things to identify students who will be successful. First, the students need to pass the very mathematical, theory-based coursework and exams. Second, after passing, this same student needs to be creative and interested in economic questions to create an interesting research agenda. This combination of skills is tough to find simultaneously, so you want to show you can bring both to the program. Here's what you need to bring to the table:

1. Quantitative Skills

A strong application will have all the following courses under your belt, with good grades:

Multivariate calculus
Differential equations
Linear algebra
Statistics
Probability theory
Real analysis

Other topics that will show your skills and/or prepare you for Ph.D. coursework: Stochastic processes, Optimization (MTH 254, note it is a prerequisite for ECN 218), any kind of mathematical proofing course, mathematical modeling.

On the economics side, you should take Applied Econometrics (ECN 209) or Econometric Theory & Methods (ECN 215).

2. Research Skills

The best applications will show the student has experience in conducting economic research. This could be done in several ways:

Here at Wake, you should have at minimum research paper from your econometrics course, which can be part of your portfolio. Additionally, we encourage doing a Senior Honors Thesis, where you will conduct an original research project over the course of the year, with mentorship from two faculty members. This means you should take ECN 209 or ECN 215 prior to Fall semester senior year, in order to have these skills ready for your thesis.

Many applicants also have additional research experience when they apply to grad school, often as a research assistant to a Ph.D. economist. This can be:

1. During the year with a Wake professor.
2. In the summer, at Wake or elsewhere.
3. As a year or two of full time employment after Wake, before grad school.
4. In the capacity of a Master's degree.

If you are interested in being a research assistant here at Wake, the best advice is to do well in class, be engaged, and let your professors know you are interested in helping with their research. Positions are sometimes available, but we might not know who is interested!

Some resources for summer research assistantships:

American Economics Association (AEA) Summer and Scholarship programs.
<https://www.aeaweb.org/about-aea/committees/aeasp>

The Federal Reserve System often has internships, check your local Fed if you'd like to be near home:
<https://www.federalreserve.gov/careers-internships.htm>
<https://www.newyorkfed.org/careers/summer-programs.html>

Options 3. and 4. are discussed below in "Intermediate paths."

3. A credible recommendation

This category you have less control over, but you basically want to have recommendation letters from professors that a) know you and your skills well b) can be a "credible" source. What does this mean? "Credible" means that the admissions committee believes this faculty member understands the demands of an Econ Ph.D. program, which often means they are active in research and known by other economists. Essentially, the admissions committee gets many letters saying "this student is smart and can do research," but if they know the recommender does excellent research themselves, or prepared previous excellent students, the letter is more credible.

What can you do about this? Develop a relationship with your faculty members by being engaged, talking with them in office hours, and/or being involved in their research. If you're interested in grad school, make it known early. The faculty at Wake is happy to work with you and direct you to folks who are connected to current research you're interested in.

4. A very high math score on the GRE

Luckily, this is totally in your control. It's middle school/high school math—it's all about practice and learning the shortcut tricks. Get a book, take a prep course, practice so you can make minimal mistakes.

Other resources in the profession talking about the above:

<https://www.aeaweb.org/resources/students>

Susan Athey's advice: <https://people.stanford.edu/athay/professional-advice>

Greg Mankiw's advice: <http://gregmankiw.blogspot.com/2006/05/advice-for-aspiring-economists.html>

What should I be doing at Wake?

The first most important thing is to work on the list above. That said, there's more than one way to achieve this in Wake "Deaconomics." The Mathematical Economics major focuses on a more mathematical approach to theory, which is helpful. However, the strongest signal on your transcript is actually the mathematics courses themselves, so the straight Economics major is fine as long as you pay attention to the above.

Take your econometrics class sooner rather than later, especially before your senior year, so you can get a start on either research with a faculty member or your Senior Honors Thesis. Speak with the Honors Thesis faculty before you leave for the summer junior year, if you'd like to get a start on your project. This can help give you a more complete paper to include in your applications, either to grad school or an intermediate step.

Be engaged in class, get to know your professors, and let them know you're interested in grad school and/or research. The department also sometimes offers opportunities to attend economics seminars here or at regional conferences to learn more about the profession.

Ok, so should you apply now?

If you have strong credentials in the above, you can apply to start grad school directly after undergrad. Keep in mind most grad school applications must be submitted in the Fall of your senior year, which means your portfolio of "strengths" should be mainly established by that time.

Below, I also list some intermediate paths to an Econ Ph.D. There are several reasons why it might be helpful to your admission as well as your success in a Ph.D. program to take an intermediate path to grad school.

1. You have a few more semesters to bulk up on your math courses—good for your application, as well as being sure you can hit the ground running in the theory courses.
2. You get a chance to participate in research. This could also bulk up your application, especially if you are able to get a publication in the works. More importantly, you can get a good working knowledge of statistical programs that you will use in your future coursework and research, such as Stata, Matlab, R, Mathematica, and LaTeX. This will save you a LOT of time and give you a leg up when you're trying to learn new material- at least you won't have to learn new material AND the commands to run it in Stata.
3. A chance to participate in research also shows you how the research process works, and, in particular, how research can FAIL. This is great wisdom to bring into the long haul of writing your Ph.D. thesis. I had several classmates who struggled when their first idea didn't work out exactly as they planned. You will know that's totally normal, and have a plan to keep moving forward.
4. This reason may not be a certainty, but you can also develop relationships with economists who can write your recommendation letters. For example, if you end up working for a "prestigious" professor.

Intermediate paths to strengthen your grad application (and skill set!)

1. Work full-time as a research assistant for a “prestigious” professor:

Many top schools’ faculty will hire full time research assistants. This is a great way to be exposed to research, get skills, and cultivate good recommendation letters. These are full-time jobs, and may actually offer health benefits as well.

A recent University of Chicago Booth advertisement listed the following qualifications needed:

“The ideal candidate will have (i) a strong quantitative background, (ii) strong computer skills including programming, (iii) the ability to work independently to solve problems, and (iv) a long-term interest in pursuing research in economics. Background in economics is a plus, but not necessary—we welcome candidates with strong technical backgrounds who are looking for more exposure to economics.”

Another Stanford listing requested:

1. A cover letter describing
 - a. Your interest in this position
 - b. Your familiarity with programming languages (e.g. Stata, SAS, Matlab, SQL)
 - c. Your prior experience as a research assistant and/or with independent research projects (e.g. a thesis or other research project)
 - d. Names, e-mail addresses, and phone numbers of 2-3 references
 - e. Your earliest and preferred start dates
2. A current CV, including the following information
 - a. Your undergraduate degree
 - b. Your undergrad institution
 - c. Your undergraduate GPA
 - d. The highest degree you will have obtained before your start date, and the institution
3. A transcript (unofficial is fine)
4. An original research paper (if available).”

A Raj Chetty (Harvard) Research Assistant posting:

“The fellowship will include a variety of tasks that provide preparation for graduate school, such as analyzing data, developing statistical models, creating presentations, and editing research papers. In addition to working with faculty as research assistants, the pre-doctoral fellows frequently co-author papers with other students or faculty members. Fellows will interact regularly with professors and their collaborators – such as David Deming, Matthew Jackson, and Emmanuel Saez – in a team-oriented lab environment, with weekly lab meetings and other events. The program serves as an ideal bridge between college and graduate school for students interested in empirical economics. Most previous fellows have gone on to top Ph.D. programs. Salary will be competitive. Applicants should be completing (or have completed) a Bachelors or Master’s degree and have strong quantitative and programming skills. Candidates with research experience are strongly preferred, especially those with programming experience in Stata, SAS, R, Python, and Julia. Candidates need not be Economics majors, though they should have a strong interest in and some experience with Economics. Candidates would ideally begin on June 1, 2018 and work for us for two years before applying to graduate school in Economics or another social science.”

Where to find them? Check:

<http://www.nber.org/jobs> In the “Research Assistant Positions”

Check out particular top program special projects: i.e. <http://www.equality-of-opportunity.org/>,
Poverty Action Lab <https://www.povertyactionlab.org>

Poverty Action Lab has a detailed document on making yourself marketable:

<https://www.povertyactionlab.org/sites/default/files/documents/Advice-for-Landing-an-RA-ship.pdf>

Individual Economics departments likely to have some listings: MIT, Chicago, Princeton

For example: Princeton -> Careers -> External Applications for Staff Positions -> Predoctoral Research and search for “Economics” i.e. “Senior Research Specialist I”

2. Work full-time as a research assistant in an organization:

Any organization that employs Econ Ph.D.s will likely also employ research assistants to work with them. Look for an organization that has a track record of sending students to graduate school afterwards if that is your goal. A bunch of well-connected PhDs are able to write you letters and/or advise you on how to apply and where. Some organizations with a historically good track record include:

- The Board of Governors
- Any of the regional Feds, in particular New York, Atlanta
<https://www.federalreserve.gov/careers-research-assistants.htm>
https://www.newyorkfed.org/careers/advanced_degrees.html
Short videos about typical activities of the research assistants:
https://www.newyorkfed.org/research/careers/research_analysts/index.html

Others

- half consulting / half academic - Mathematica, RAND, Research Triangle International
- think tanks - Urban Institute, Center for Budget and Policy Priorities
- D.C. government agencies - Bureau of Labor Statistics, US International Trade Commission, Congressional Budget Office, U.S. Department of Justice: Economic Analysis Group (<https://www.justice.gov/atr/employment-opportunities-research-analysts>)
- Consulting firms - Charles River Consulting, iMPAQ (healthcare), Analysis Group, Advanced Analytical

The more “academic” the research (i.e. economists get to decide their own questions and they often write papers to publish in academic journals) the more likely the economists are to be well-connected to grad school admissions.

3. Get a Master's Degree

Getting a Master's Degree can improve your quantitative skills, as well as prove to PhD programs that you can handle the coursework. Look for MA programs that list their graduates on their websites and where they placed them. A strong record of placing MA students in PhD programs tells you they adequately prepare the students as well as that the program is well-connected to academia and PhD programs trust their graduates to succeed.

Some programs to consider:

- London School of Economics
- Duke University
- New York University
- George Mason University
- UT Austin