

# So you think you can do ... a Ph.D. in Economics, Agricultural and Resource Economics, Environmental Economics, Political Science or Quantitative Social Sciences

Advice from an alumnus  
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Greetings, my ambitious friend! I am thrilled that you are thinking about going for the Ph.D. in the above fields and eyeing a career in academics, research or consulting. I recently went through the process and I thought I should share a few words of wisdom – things I wish I knew and did before embarking upon the doctoral journey. Let me fire away!

## 1. Coursework

There is simply no substitute to taking a lot of quantitative coursework. Try not to cram everything in a few semesters but spread them out strategically. I myself regret not taking the full set of the following courses and had a hard time at the beginning of my Ph.D. program. I urge you to take all the courses I suggest in the following list – they are what I wish I took had I known what was coming...

Achieve a B+ or better in the following courses, in addition to or in combination with your major requirements:

MATH 140 Calculus I	ECON 422 Econometrics I
MATH 141 Calculus II	ECON 424/AREC 382
MATH 241 Calculus III	Computer Methods
MATH 240/461 Linear Algebra	ECON 425 Mathematical
MATH 310/410 Mathematical	Economics
Proof & Advanced Calculus I	ECON 481 Environmental
STAT 410 Probability Theory	Economics
STAT 420 Statistical Theory	
ECON 325 Intermediate Macro	AREC 388/ENSP 499 Honors
ECON 326 Intermediate Micro	Thesis
ECON 414 Game Theory	AREC 489J Energy and
	Environmental Economics

I cannot emphasize enough how important it is to take MATH310/410! In Ph.D. Micro, you will begin by proving many (“basic”) economics concepts mathematically. I deeply regret not having taken Real Analysis prior to the start of the program.

These courses are recommended but optional.

MATH 410 Adv. Calculus I	ECON 423 Econometrics II
MATH 411 Adv. Calculus II	ECON 426 Cost Benefit
MATH 246 Differential Equations	Analysis
MATH 420 Mathematical Modeling	AREC 489F Econometric Applications

## 2. Research and more

The Ph.D. is a research degree, so I assume you are already very fond of the scientific method and have a strong interest in research. Start looking early and make a bookmark folder of opportunities. The UMD Undergraduate Research Center has a few ongoing projects available! You can start there. If you like a class a lot, go to the Prof's office hours and ask (innocently) whether you may be able to get involved in some kind of research project. There are also many research opportunities available outside of campus. Make sure you check out the NSF REU list. The EPA has a STEP program, NOAA has the Hollings program, and many other programs exist out there. Smithsonian's SERC is also very interesting if you want some exposure to physical or biological science research [for the interdisciplinary you!]. Your listserv emails are MANDATORY reading! Once you get a good topic going, make sure you achieve some kind of end product (presentation, paper, etc...) even if it is not yet of publication quality. There are many platforms to present undergraduate research (conferences, undergrad journals, etc...) So, don't be shy and produce a product! Eventually one of these projects may become a good thesis topic. Oh yes, I almost forgot to mention: Write an honors thesis! It is the best possible preparation one can have for graduate school and it is a thoroughly rewarding experience (building closer relationships to your recommenders too.)

Once you have some stuff going, go for some awards here and there, there are internal and external scholarships out there!

Don't do too many things at once, however. Focus on one research project at a time and deliver a good product. Once your interest or the project itself becomes exhausted, find a new topic or opportunity. Learn to say NO if too many things are happening at the same time. TA sometime too, it's lots of fun.

After your research experiences, you should have a pretty clear idea whether you want to be in research or academia. Then the fun of GRE, letter of recommendations and personal statement begins! If you would like to chat about Ph.D. programs, feel free to contact me at [jw3144@columbia.edu](mailto:jw3144@columbia.edu). Enjoy the intellectual (and emotional) challenge. - Jason