

Master's in Economics @ Cal State East Bay

APPLYING TO PHD PROGRAMS WITH A MASTER'S IN ECONOMICS

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1. MASTER'S AS STEPPING STONE TO A PHD

The master's degree can be a significant factor in your admission to a good PhD program in economics. Some European programs will let you go straight to the thesis stage if you already have a master's (a doctoral thesis should take you about three years to write). A US (or Canadian) program, and programs elsewhere that are modeled on the US system, will require you to take another two years of coursework prior to the thesis stage (and may award another master's if you do not complete the PhD subsequently). In this case, the master's provides you with the opportunity to get into, and succeed in, a much better program.

The importance of this cannot be stressed enough: your job prospects with a PhD depend to a great extent on which school grants your PhD. This is why investing two years into a good master's prior to applying for the PhD is a time-honored and wise strategy, unless you are already very well-prepared. Specifically, to get into a top US PhD program without a master's, you need to have a bachelor's degree with nearly perfect grades from a top university, including advanced coursework in economics and mathematics, a nearly perfect GRE score, and enthusiastic recommendation letters from well-known professors. Doing a master's first allows you to improve your GPA, demonstrate in graduate-level courses that you can handle the technical demands of a PhD curriculum, work on your GRE and perhaps a research paper, and interact much more closely with professors who can effectively support your application and advise you. In addition, if you change your mind about the PhD, a terminal master's qualifies you for other careers in economics, without the stigma of having dropped out of a PhD program.

While master's programs are virtually always self-funded and offer little or no financial aid, admission to a PhD program often comes with generous funding (especially at the

best schools), including not only a full tuition waiver, but also a stipend that can range from about \$10K to \$30K per year. Financially, it makes sense to go to a reasonably priced master's program to prepare yourself for admission to the best PhD program you can get into.

2. FACTORS IN PHD ADMISSIONS

A PhD application is typically accompanied by the GRE score (what matters is the quantitative section, where you should be above the 90th percentile), your transcript (which should show advanced economics courses and multivariate differential and integral calculus, linear algebra, probability and statistics, and ideally real analysis, all taken in the math department), three recommendation letters (from economics professors), and a statement of purpose (in the UK, this takes the form of a research proposal and is more important than in North America). Optionally, you can include a writing sample, which should be brief and display technical ability (some UK programs require it).

2.1. *Math Preparation*

The University of Wisconsin's economics website discusses mathematics expectations for the PhD in a bit more detail: http://www.econ.wisc.edu/grad/math_reqs.html.

If you plan to apply for the PhD and do not yet have this background, you should make up for these deficiencies. Relevant courses offered in the math and stats departments at Cal State East Bay are:

Calculus I-III (MATH 1304, 1305, 2304), *Elements of Linear Algebra* (MATH 2101), *Introduction to Probability Theory I-II* (STAT 3401, 3402), *Statistical Inference I-II* (STAT 3502, 3503)

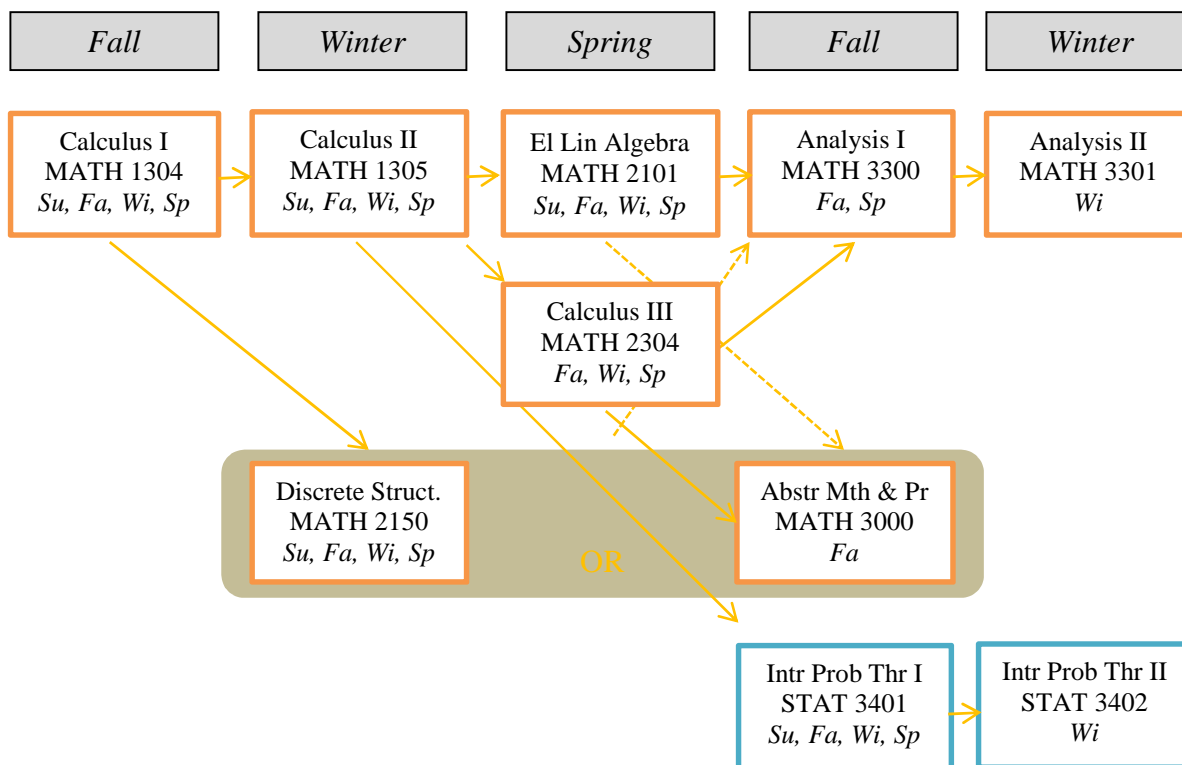
The following courses build useful mathematical skills that add something to your candidate profile:

Introduction to Abstract Mathematics and Proofs (MATH 3000), *Mathematical Modeling* (MATH 3865), *Calculus IV* (MATH 2305), *Linear Programming* (MATH 3841), *Topics in Optimization* (MATH 4841)

Classes that let you demonstrate directly relevant mathematics background that will carry weight with admissions:

- Micro Analysis I-II (MATH 3300, 3301), *Theory of Functions of a Real Variable* (MATH 4350), *Introduction to Topology* (MATH 4360), *Real Analysis* (MATH 6350)
- Macro Differential Equations (MATH 3331), *Numerical Analysis I-II* (MATH 3750, 4750), *Introduction to Stochastic Processes* (STAT 4401), *Advanced Stochastic Processes and Simulation* (STAT 6310)
- Metrics Linear Algebra (MATH 3100); *Probability Theory* (STAT 4412 or STAT 6204), *Advanced Probability I-II* (STAT 6401, 6402); *Statistical Theory* (STAT 6205), *Advanced Statistical Inference* (STAT 6304), *Mathematical Statistics I-II* (STAT 6501, 6502); *Theory and Application of Regression* (STAT 6509); *Statistical Time Series Analysis* (STAT 6555)

Real analysis and its extensions (such as probability) are the main thing people will look for in assessing whether your mathematics background is merely adequate (has the essentials) or strong. The best strategy is therefore to take a sequence of courses in the math department that leads up to real analysis. Depending on prior coursework, you might plan to take additional math courses according to the following schedule:



The math department may allow you to enroll in courses without meeting all the formal prerequisites. However, you should be aware that real analysis is a demanding subject that requires knowledge of concepts from advanced calculus and enough mathematical sophistication to understand and write formal proofs. Be sure you're ready for it.

2.2. *Student Research*

PhD programs also like to see evidence that you are capable of independent scientific writing. You are welcome to approach faculty members to discuss ideas, in fact this is the best way for us to get to know you and write a specific, unequivocal recommendation letter in the future. The initiative should come primarily from you (even if you end up co-authoring a paper with faculty), so that the results can be attributed to you in the letters.

Having a single- or co-authored working paper, possibly in submission to a journal, can boost your application substantially. Keep in mind, however, that the standards for good publications in economics are very high and take immense time and effort to meet. Very few students enter graduate school with a paper to their name that can publish well. (Publication itself is almost impossible by the time you apply, since the review and revision process can take years, and is likely to involve initial rejections.) Even at the completion of the PhD, most economists do not have any publications; the expected time to get published is while they are assistant professors.

2.3. *Getting Good Letters*

The letters are very essential and therefore require some thought and preparation. It would be a big mistake to view them as a mere formality. A strong letter is 2-3 pages long and reflects experience of the letter writer with the requirements of PhD programs as well as familiarity with the applicant that goes beyond course grades and class-related work. You will want to get competent professors to write for you, where competency is better reflected by the quality of publications and current research than quantity and seniority. It is admittedly hard to judge this from your perspective, but professors who are assigned to teach core graduate courses and the more rigorous electives are likely to be the kind you want. You could also ask your instructors or the program director for advice on this.

Try to genuinely impress your letter writers, rather than just get good grades. Although letters will normally be favorable in tone, there is a carefully modulated language that experienced writers use which clearly differentiates between top students and merely good students, and communicates the amount of information we have, as well as weaknesses we may be aware of. It is our duty to you to write a letter that reflects your strengths, but we also have a duty to colleagues and the profession to convey an accurate impression of how you compare with other candidates. You do not help yourself by going through the motions of talking to professors and asking for research projects; you need to show genuine personal initiative and accomplishment, coming to us for feedback rather than ideas and close guidance.

3. TIMING

Most PhD programs only admit new students for entry in the fall semester (and, if not, fall entrants are usually prioritized for scholarships). The deadlines for PhD applications range from the end of November to the beginning of January for the best US and Canadian programs (later for less prestigious ones). Expect to be notified of outcomes in April or May. (All PhD-granting departments also recruit faculty between November and February, which tends to delay the review of PhD application files.) Many European programs have deadlines between February and April. (Note that, particularly in the UK, you may have to apply for funding externally and meet separate deadlines for that, but most programs consider you for scholarships in parallel with admission.)

3.1. *Choosing Classes*

You should plan to have a strong profile by late fall of the year you apply, or at the latest early winter. Aim to complete as much as possible of the core (particularly the micro sequence) prior to applying (or at least before admission decisions are made), as well as potentially some mathematics courses (anything remedial and, ideally, real analysis). This signals most effectively your ability to handle graduate-level economics.

Another consideration is taking classes with economics professors who will be strong letter writers. Generally, the more research-active the professor, the more weight his or her recommendation will carry. You might want to plan your classes to get early exposure to particular faculty members. Although you will be well into the fall semester by the time you apply, you can still send updated transcripts while your application is being reviewed – but you cannot send updated recommendation letters.

3.2. *Application Deadlines*

For your orientation, below is a listing of the most recent (typically 2012) application deadlines for PhD programs in economics, with some comments on the quality of the programs. (Multiple deadlines indicate multiple intakes per year, but there is usually a “normal” time to enter when, presumably, better financial support is available.) Very roughly speaking, the better programs have earlier deadlines (and schools outside North America often have later deadlines).

There is little disagreement that the two leading departments in the world are Harvard and MIT (at about the same level), and the best ten to thirty departments (depending on whom you ask) are all in the United States. Some business schools associated with

top universities also confer an economics PhD. While there are some good European programs (that work a lot like US programs, e.g. the language of instruction is invariably English), it still tends to be the case that their graduates are less likely to find jobs in the US (if that is your goal). The best PhD programs in Australia-New Zealand and East Asia are primarily oriented toward the local job market.

Early December deadlines (before or on 12/5)

Ohio State University 11/30, University of California, Santa Barbara 11/30, Princeton University 12/1, Stanford Graduate School of Business 12/1, University of California, Los Angeles 12/1, University of Colorado, Boulder 12/1, University of Southern California 12/1, Harvard University 12/3, Harvard Business School 12/3, University of California, Berkeley 12/4, University of Wisconsin 12/5

Harvard, Princeton, and Berkeley (and “informally” also the Stanford GSB, which has a similar standing as the Stanford economics department) are top departments. UCLA and Wisconsin are excellent programs that rank close to the top ten. Ohio State and USC are “top thirty,” Colorado “top fifty” (quotation marks because the definitions of these tiers are fluid in people’s minds and may contain a few extra programs). UCSB is primarily known for environmental economics.

Beyond the “Top Fifty” (US) **University of Wisconsin, Milwaukee 12/1**

Mid-December Deadlines (between 12/6 and 12/20)

Duke University 12/8, Stanford University 12/11, University of Cambridge (Cambridge, UK) 12/12, University of Minnesota, Twin Cities 12/13, Michigan State University 12/14, University of California, San Diego 12/14, Brown University 12/15, California Institute of Technology 12/15, Columbia University 12/15, Massachusetts Institute of Technology 12/15, Northwestern University 12/15, Purdue University 12/15, University of California, Davis 12/15, University of Michigan, Ann Arbor 12/15, University of Pennsylvania 12/15, University of Toronto 12/15, University of Washington, Seattle 12/15, Yale University 12/15, Wharton School of Management 12/15, New York University 12/18

Stanford and MIT are top departments. Northwestern, Penn, Yale, and (more marginally) NYU are normally considered “top ten.” Caltech is difficult to place, since it’s a very small and unique program with emphasis on theoretical and interdisciplinary research; however, its graduates tend to be competitive with the best. Minnesota, Columbia, Michigan, and Toronto rank close to the top ten. Wharton may be about as prestigious as these, although it doesn’t produce many economics PhDs and is again hard to categorize. Duke, UCSD, and Brown (the best of these) are “top thirty.” Cambridge is perhaps marginally on par with the top thirty, but its graduates vary more in quality. Michigan State, Davis, U Wash, and (marginally) Purdue are “top fifty.”

Beyond the "Top Fifty" (US) **Lehigh University** 12/15, **Texas A&M University** 12/15, **University of Missouri, Columbia** 12/15 and 10/1, **University of South Carolina, Columbus** 12/15

Early New Year Deadlines (before or on 1/10)

University of Chicago 12/28, Kellogg School of Management 12/31, **University of Notre Dame** 12/31, Booth School of Business 1/1, **Georgetown University** 1/1, **University of Illinois, Urbana-Champaign** 1/1, **University of Texas, Austin** 1/1, **Boston College** 1/2, **Boston University** 1/2, Kennedy School of Government 1/2, **University of Rochester** 1/2, **Johns Hopkins University** 1/6, **London School of Economics (UK)** 1/7 (preferably apply early), **University of North Carolina, Chapel Hill** 1/8, Stern School of Business 1/10

Chicago is a top department. Kellogg and Booth (the business schools of the University of Chicago and Northwestern University) are on par with top ten, and the Kennedy School (Harvard's public administration school) and Stern (NYU's business school) are not far off. The LSE is the best European department and also comparable to the top ten. Illinois, BU, and Rochester are "top thirty." Georgetown, Texas, Boston College, and Johns Hopkins are somewhere in the fringe between "top thirty" and "top fifty." UNC and Notre Dame are "top fifty."

Beyond the "Top Fifty" (US) **Kansas State University** 1/1, **North Carolina State University** 1/1, **University of Illinois, Chicago** 1/1, **University of Georgia** 1/4 (rolling), **George Washington University** 1/5, **University of California, Riverside** 1/5, **Washington State University** 1/10

Late Winter Deadlines (mid-January through February)

University College London (UK) 1/13, **Arizona State University** 1/15, **Carnegie-Mellon University** 1/15, **Cornell University** 1/15, **Indiana University** 1/15, **Pennsylvania State University** 1/15, **Rice University** 1/15, **University of California, Irvine** 1/15, **University of California, Santa Cruz** 1/15, **University of Iowa** 1/15, **University of Maryland, College Park** 1/15, **University of Pittsburgh** 1/15, **University of Virginia** 1/15, **Vanderbilt University** 1/15, **Washington University St. Louis** 1/15, **Oxford University (UK)** 1/18 and 3/8 (requires writing samples), **University of Arizona** 1/21, **European University Institute** (Florence, Italy) 1/31, **Iowa State University** 1/31, **Universidad Carlos III de Madrid** (Madrid, Spain) 1/31 and 4/20, **Universität Wien** (Vienna, Austria) 1/31 and 4/30 **University of Edinburgh** (Edinburgh, UK) 1/31 and 3/31 and 6/15, **Universität Zürich** (Zurich, Switzerland) 1/31, **George Mason University** 2/1, **Goethe Universität Frankfurt** (Frankfurt, Germany) 2/1 and 5/1 and 6/15, **Sciences Po** (Paris, France) 2/1 and 5/18, **Stockholm School of Economics** (Stockholm, Sweden) 2/1, **Tilburg University** (Tilburg, Netherlands) 2/1, **Tinbergen Institute** (Amsterdam / Rotterdam, Netherlands)

2/1 and 4/1, **Università Bocconi** (Milan, Italy) 2/1, **University at (SUNY) Buffalo** 2/1, **Florida State University** 2/15, **University of Warwick** (Warwick, UK) 2/15

University College and Oxford round out the “top three” in the UK (after the LSE). Setting the high variance of their graduates aside, they are on average competitive with Carnegie-Mellon, Cornell, and WUSTL, which place among the better “top thirty” schools. EUI and Tilburg are among the best of the European programs, which are all comparable to the top fifty. The rest are “top fifty,” give or take, with Penn State and Maryland a little way ahead of the others. George Mason has a special focus on Austrian economics, a non-quantitative approach.

Beyond the “Top Fifty” (US) **American University** 1/15, **Brandeis University** 1/15, **Clemson University** 1/15, **Howard University** 1/15, **Indiana University-Purdue University Indianapolis** 1/15, **New School for Social Research** 1/15 and 11/15 (then rolling), **Rutgers University** 1/15, **Stony Brook University (SUNY)** 1/15, **Temple University** 1/15 and 11/15, **Texas Tech University** 1/15, **University of Alabama, Tuscaloosa** 1/15 and 6/1, **University of Arkansas, Fayetteville** 1/15, **University of Hawaii, Manoa** 1/15, **University of Massachusetts, Amherst** 1/15, **University of Missouri, Kansas City** 1/15 and 9/1, **University of Oklahoma** 1/15, **Virginia Tech** 1/15, **Drexel University** 1/25, **University of South Florida** 1/31, **Binghamton University (SUNY)** 2/1, **City University of New York, Graduate Center** 2/1, **Claremont Graduate University** 2/1 and 4/1 and 11/1, **Clark University** 2/1, **Northeastern University** 2/1, **Syracuse University** 2/1, **University of Connecticut, Storrs** 2/1, **University of Houston** 2/1, **University of Kansas** 2/1, **University of Kentucky** 2/1, **University of Miami** 2/1, **University of Tennessee, Knoxville** 2/1, **University of Utah** 2/1, **University of Wyoming** 2/1, **Colorado State University** 2/15, **Georgia Institute of Technology** 2/15, **Georgia State University** 2/15, **Louisiana State University** 2/15, **University at (SUNY) Albany** 2/15, **University of Delaware** 2/15, **University of North Carolina, Greensboro** 2/15, **University of Oregon** 2/15, **Western Michigan University** 2/15

Spring and Summer Deadlines (March or later)

Paris School of Economics (Paris, France) 3/1 and 5/27, **Toulouse School of Economics** (Toulouse, France) 3/15, **University of Essex** (Essex, UK) 3/27, **Humboldt Universität Berlin** (Berlin, Germany) 3/31, **Université Libre de Bruxelles** (Brussels, Belgium) 3/31, **Universitat Pompeu Fabra** (Barcelona, Spain) 4/12, **Universität Mannheim** (Mannheim, Germany) 4/15, **University of Glasgow** (Glasgow, UK) 4/17, **Ludwig-Maximilians-Universität München** (Munich, Germany) 4/30, **Rheinische Friedrich-Wilhelms-Universität Bonn** (Bonn, Germany) 4/30, **Universitat Autònoma de Barcelona** (Barcelona, Spain) 6/1 (rolling), **Université Catholique de Louvain** (Louvain, Belgium) rolling

PSE, TSE, and Pompeu Fabra are among the strongest European programs, competitive with the top thirty. The others are more or less on par with each other and top fifty schools.

Beyond the "Top Fifty" (US) **Auburn University 3/1, Mississippi State University 3/1, Oklahoma State University 3/1, University of Mississippi 3/1, University of Nebraska, Lincoln 3/1 and 10/1, University of New Mexico 3/1, West Virginia University 3/1, Suffolk University 3/15 (then rolling), Middle Tennessee State University 3/31, Florida International University 4/1, Fordham University 4/1 (rolling), University of Texas, Dallas 4/1, University of Nevada, Reno 4/15 and 10/15, University of New Hampshire 4/15, Northern Illinois University 5/1, Southern Illinois University 5/1, Southern Methodist University 5/1, Wayne State University 5/1 and 9/1 and 1/1**