

# Master of Science in Econometrics and Quantitative Economics Handbook

University of Arizona



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## **Welcome to the University of Arizona MS in Econometrics and Quantitative Economics Program**

You are now a member of the Eller College of Management at the University of Arizona. The Economics department at the University of Arizona is one of the leading research units in the country with a strong tradition in theoretical and applied microeconomics. Microeconomics is concerned with individual and firm decision making. It combines formal modeling and data analysis tools to help understand the individual, firm level, and social consequences of decision making in interactive environments. The microeconomic focus of our program reflects a long-term commitment of the Economics department to strengths in game theory (the theory of interactive decision making), econometrics (which provides the data analysis tools), applied microeconomics (which takes economic theory and econometric methods to field data) and experimental economics (which studies data that are generated under controlled conditions in the laboratory).

The department also has substantial expertise in industrial organization, labor economics, economic history, and environmental economics, all of which are data intensive. The department is one of the premier institutions in the world in experimental economics, being the home of the Economic Science Laboratory, which was founded by the Nobel Laureate Vernon Smith. The increased availability of data in industry and government creates a need for individuals who are able to analyze the data and interpret the results within an economic framework.

Well-trained economists are able both to identify causal relationships and to quantify those effects. The former requires a sound grounding in microeconomic theory and the latter familiarity with advanced econometric methods. This skill set is a prerequisite for informed counterfactual analysis and decision support. The goal of the program is to provide students with these skills in an intensive three-semester format.

## **Program Overview**

The MS in Econometrics and Quantitative Economics prepares students for high-level positions in industry and government, or to enter a Ph.D. program. The program has a strong analytical and empirical focus. The emphasis is on microeconomics, econometrics, and their applications. The goal is to train students to understand and analyze economic and business situations using modern economic methods. Students will acquire a sound foundation in econometric techniques and the ability to evaluate and design institutions using analytical, empirical, and experimental methods. A typical student is expected to complete the program in three semesters.

All courses are taught by research-oriented faculty, who are leading scholars in the areas of economic theory, econometrics, and behavioral/experimental economics. The department is very active in publishing research, as well as organizing and attending seminars and conferences. The master's program is organized to take the most up-to-date developments in economic research and bring these to the students from a practical viewpoint.

The program has four focus areas: econometrics, microeconomic theory (individual decision making and market equilibrium, game theory, and market design), empirical microeconomics (the use of econometric methods to understand markets, industries and other institutions), and experimental/behavioral economics (the use of laboratory methods and approaches from psychology to understand individual and interactive decision making).

The core consists of two methods courses, two econometrics courses, and two economic theory courses. The methods courses include one on mathematics for economists and one on probability and statistics, both taken in the first term. The econometrics core courses are taken in the second and third semesters, and include fundamental topics in modern econometrics, notably: average treatment effects models, the bootstrap, estimation of discrete choice models, and quantile regression methods. The microeconomic theory core, taken in the first and second semesters, provides a foundation in individual choice theory, market equilibrium, game theory, and information economics. In addition to the six courses in the core, students will take four elective courses: two during the second semester and another two during the third semester. Elective courses are offered in Industrial Organization, Economics of Healthcare, Labor Economics, Energy Economics, Market Design, Experimental Economics, Behavioral Economics, and Financial Econometrics.

**Required Coursework:**

Core	18 Hours
Electives	12 Hours
<b>Total</b>	<b>30 Hours</b>

**Core Courses:**

<b>Number</b>	<b>Title</b>	<b>Credit Hours</b>	<b>Semester</b>
ECON 519 A	Mathematical Economics	3 Hours	Fall/1 <sup>st</sup> Yr
ECON 520	Theory of Quantitative Methods in Economics	3 Hours	Fall/1 <sup>st</sup> Yr
ECON 501 A	Microeconomic Theory I	3 Hours	Fall/1 <sup>st</sup> Yr
ECON 501 C	Microeconomic Theory II	3 Hours	Spring/1 <sup>st</sup> Yr
ECON 522a	Econometrics I	3 Hours	Spring/1 <sup>st</sup> Yr
ECON 522b	Econometrics II	<u>3 Hours</u>	Fall/2 <sup>nd</sup> Yr
<b>Total</b>		<b>18 Hours</b>	

**Elective Courses:**

Elective courses are designed to expose you to subfields of economics and to give you an opportunity to apply the tools from the core. You are required to take two elective courses in the spring semester of the first year and another two elective courses in the fall semester of the second year.

*List of electives:*

<b>Number</b>	<b>Title</b>	<b>Credit Hours</b>
ECON 572	Labor Economics	3 Hours
ECON 506	Experimental Economics	3 Hours
ECON 527	Economics of Healthcare	3 Hours
ECON 536	Behavioral Economics	3 Hours
ECON 560	Industrial Organization	3 Hours
ECON 522 C	Financial Econometrics	3 Hours
ECON 573	Energy Economics	3 Hours
ECON 501 D	Market Design	3 Hours

Students may take additional course work from other departments on campus; however, they may require special approval. It is up to each student to investigate the requirements to register for graduate level courses in other departments. Undergraduate units do NOT count toward the Master level unit requirements. Non-Econ courses do not count toward the Econ MS degree requirements. Exceptions require permission from the director of the program.

## **Admissions**

Admission to the program proceeds on a rolling basis. After submitting a complete application, you should receive a response within three weeks. All applications must be received before May 1<sup>st</sup>.

The following material must be included with your application

- (1) Academic transcripts from your Bachelor's program. You may submit an electronic copy when you apply. However, you must provide an official copy of your transcript, as well as proof that you have completed a Bachelor's degree, upon the beginning of the program in August.
- (2) A test score on either the GRE or GMAT exams
- (3) Two letters of recommendation
- (4) International students must also provide a TOEFL score. The minimum TOEFL score required for admission to the program is 85.
- (5) A one-page Statement of Purpose, explaining why you are applying to the program.
- (6) A resume or curriculum vitae indicating your educational and work experience.

## **Registration Requirements and Procedures**

### **Registration**

Master's students must submit their enrollment requests to the Graduate Coordinator; the schedule of classes may be found on UAccess (<https://uaccess.arizona.edu/>).

### **Program of Study**

All students must submit the *Master Plan of Study* (MPOS) via *GradPath* during the spring semester. At that time, you list the elective courses that you wish to take. The Director of the Master's program will approve the form as 'advisor'. All forms are submitted online via *GradPath* (<http://grad.arizona.edu/GradPath>).

### **15 Unit Exemption Request**

All Econ MS students seeking to register in excess of 15 units shall require the permission of the director of the program.

### **Satisfactory Progress**

It is expected that each student will make satisfactory progress toward program/degree completion. The semester unit load ranges from 9 to 15 units.

- Domestic students must register for 6 units to be considered full time.
- International students must register for 9 units to be considered full time.

### **Cumulative Grade Point Average (CGPA)**

Students should maintain a minimum cumulative grade point average (CGPA) of 3.0. A letter grade of "D" is NOT a passing grade at the graduate level. Students who fail to maintain a minimum CGPA of 3.0 will be placed on academic probation by the Graduate College. Students who fail to complete the program with a minimum CGPA of 3.0 will NOT be awarded their degree. Students on academic probation for two consecutive semesters will be disqualified from their program. All graduate level courses are included in your CGPA calculation.

### **Registration Requirements**

A student admitted to a master's program must register each fall and spring semester for a minimum of 3 graduate units from original matriculation until the completion of all course requirements. Unless excused by an official Leave of Absence (which may not exceed one year throughout the student's degree program), all graduate students are subject to the Continuous Enrollment Policy and must pay in-state and out-of-state tuition and fees in order to remain in the program. If the student fails to obtain a Leave of Absence or maintain continuous enrollment, he or she will be required to apply for re-admission, to pay the Graduate College application fee, and pay all overdue tuition and fees, including cumulative late penalties. No tuition or registration waivers can be applied retroactively.

There are provisions made for students who need to take a leave of absence. Information for the policies and procedures can be found at <http://grad.arizona.edu/catalog/policies/enrollment-policies/leave-of-absence>.

## **Payment of Fees**

Payment of registration, tuition, and miscellaneous fees is due the first day of classes. You may visit the Bursar's website at <http://bursar.arizona.edu/students/fees> to find out how much you will owe. Select the term of enrollment, then 'Main Campus,' 'Graduate,' whether you are a continuing or new (non-continuing) student, and your residency status. Only long-term residents of the state of Arizona are considered 'Residents,' though you may apply for residency status after living in the state for several years. Once these variables are selected, you will be shown the tuition cost and mandatory fees for the units you will take during the semester.

Students can pay fees through UAccess Student Center (<http://uaccess.arizona.edu>). Note: the UA Bursar's Office assesses late fees if students do not pay fees by first day of classes.

## **Placement and Career Development**

Master's students have full access to the state-of-the-art Eller College Professional Development Center (PDC) (<https://pdc.eller.arizona.edu/>). The goal of the PDC is to help graduates of the program in finding professional opportunities that use the skills developed in the program and also allow for personal and career development.

In addition to the PDC, the Department of Economics will help with placement with the assistance of the graduate program coordinator, who will further help Master's students in the job application and interview process.