

# DEPARTMENT OF ECONOMICS

## Mission Statement

The mission of the Department of Economics at The University of Texas at San Antonio is to offer courses and degree programs at both the undergraduate and graduate levels that provide students with the opportunity to gain the necessary theoretical and quantitative tools in economics such that they can understand and apply economics in their daily lives, seek advanced degrees in economics, pursue careers in the global marketplace, and engage in public policy-making. It is also the mission of the department to provide an environment for its faculty and students to engage in research that will further the understanding of economics and enhance the reputation of the Department, the Carlos Alvarez College of Business, and the University.

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## Master of Science Degree in Economics

The Master of Science degree in Economics (M.S.E.) offers a program with modern quantitative methods and analytical tools suitable for a business-oriented or a social science-oriented study of economics. The program covers the essential theory of economics and econometrics but is primarily focused on applications and skill development. The program's design accommodates both students seeking a terminal degree in economics and students wishing to lay the groundwork to pursue a Ph.D. degree. Enrollment may be full-time or part-time.

There are three concentrations—General Economics, Financial Economics, and Business Data Analysis and Forecasting—to choose from. The General Economics concentration is designed to offer flexibility in course planning and is suitable for students preparing for doctoral studies in economics or related disciplines, as well as for those with interdisciplinary interests. Under the General Economics concentration, students with outstanding coursework or research experience may choose to write a thesis, though it is not required for the degree. The concentrations of Financial Economics and of Business Data Analysis and Forecasting are each designed with a selection of courses to offer students seeking careers in the private or public sectors the opportunity to learn and develop concentration-specific knowledge and practical skills. These two concentrations do not allow for a Master's Thesis. The program is supervised by the Economics Graduate Director together with the Economics Graduate Programs Committee.

## Program Admission Requirements

For admission to the M.S.E. program, applicants must meet University-wide graduate admission requirements. Applicants are further considered on the basis of potential for success in graduate study in economics as indicated by a combination of records in the application package, including:

- A completed application form.
- Transcripts from all universities attended.
- A statement of purpose.

- A letter of recommendation (additional letters are welcome but optional).
- (Optional) A résumé or curriculum vitae.

At least one letter of recommendation from a university professor or instructor is appropriate, particularly for applicants with fewer than three years elapsed since the last semester of enrollment in an institution of higher education. Personal references should be avoided.

The Graduate Admissions Committee evaluates each applicant individually based on the stated records. Accepted students are required to have completed an undergraduate degree before the start of the master's program.

## Foundation Requirements

To facilitate good progress in the degree program, students will require the following three bodies of knowledge upon enrollment in the program:

- Economic Theory: Undergraduate level of economic theory, including Intermediate Microeconomics and Intermediate Macroeconomics.
- Mathematics: An ability to apply calculus and linear algebra to equilibrium and optimization models in economics.
- Statistics: A basic knowledge of statistics, including probability distributions, sampling, and hypothesis testing.

The Graduate Admissions Committee examines the application package to evaluate whether an applicant meets the foundation requirements, with significant consideration given to the record of courses taken and grades earned in the three areas. Students who are admitted to the program but determined not to meet adequately the foundation requirements may be required to fulfill conditions as stipulated by the Graduate Admissions Committee in order to provide the necessary foundation prior to or within the first year of enrollment into the program.

The program admits students in both the Fall and Spring semesters. The core courses are scheduled on an annual basis in the form of a two-semester sequence beginning with the Fall semester.

## Degree Requirements

Students must complete 33 semester credit hours and a comprehensive examination. Students must earn 15 of the 33 semester credit hours from the core courses required for the program. The remaining 18 semester credit hours may include the credits that students can earn from an internship and a directed research project or a Master's Thesis, depending upon a student's chosen concentration.

**Comprehensive Examination.** Students must pass a comprehensive examination administered by a graduate committee. This examination is normally taken in the semester in which degree requirements are completed. The student informs the Economics Graduate Advisor of the intent to take the examination during the first month of the graduating semester.

**Internships.** Students are encouraged to pursue an internship (in the U.S. or overseas) that would substitute for an elective course (3 semester credit hours) upon approval by the Graduate Advisor.

**Directed Research Project.** Students are encouraged to undertake a research project in their area of concentration. To do so, a student seeks out an Economics faculty member willing to advise the student on developing practical and relevant ideas for a research project in a shared area of interest. The project can be conducted as a course of independent study and substitute for an elective course (3 semester credit hours).

**Master's Thesis.** The Master's Thesis option is only available in the general economics concentration and requires outstanding coursework or research experience. After successfully seeking out an Economics faculty member to serve as thesis advisor, students pursuing the Thesis Option will register in the Master's Thesis course (3 semester credit hours) in each of their final two semesters of the program. The thesis advisor supervises the writing of the research paper/project that involves a command of relevant economic theory, statistical methods, or field-research methodology. The Master's Thesis will be copyrighted and made available to the public in the UTSA library.

Students may do both an internship and a directed research paper (6 semester credit hours in total), or both an internship and a Master's Thesis (9 semester credit hours in total), but not both a directed research paper and a Master's Thesis.

### Master of Science Degree in Economics – General Economics Concentration

This concentration offers students the flexibility to tailor the course plan to their specific interests. It is particularly recommended for students interested in pursuing doctoral studies in Economics or a related discipline. This concentration may also be attractive to students seeking careers in government, politics, or the public sector, or pursuing interdisciplinary interests.

Students who select this concentration must complete the 15 semester credit hours of core courses and 18 semester credit hours of electives, with a plan of study designed in collaboration with the Graduate Advisor/ Graduate Program Director. This concentration allows for, but does not require, a Master's Thesis.

Code	Title	Credit Hours
<b>A. 15 semester credit hours of core courses</b>		<b>15</b>
ECO 6013	Microeconomic Theory	
ECO 6033	Macroeconomic Theory	
ECO 6103	Applied Econometrics I	
ECO 6113	Mathematical Methods for Economic Analysis	
STA 6003 or STA 5093	Statistical Methods in Research and Practice I Introduction to Statistical Inference	
<b>B. 18 semester credit hours of elective courses</b>		<b>18</b>
All 6000-level or higher Economics courses, with the exception of ECO 6961 and the core courses for the degree, may be used to fulfill the electives requirement, including:		
ECO 6203	Industrial Organization	
ECO 6213	Public Economics	
ECO 6303	Applied Econometrics II	
ECO 6323	International Trade Theory and Policy	
ECO 6403	Financial Economics	
ECO 6523	Labor Economics	
ECO 6543	Healthcare Economics and Policy	
ECO 6553	Urban and Regional Economics	
ECO 6573	Game Theory and Business Strategy	
ECO 6583	Special Topics in Econometrics/ Forecasting	
ECO 6633	Economic Design of Markets and Platforms	
ECO 6713	Causal Inference and Machine Learning	

ECO 6763	Data Analytics with Python
ECO 6943	Economics Internship
ECO 6951	Independent Study
ECO 6953	Independent Study
ECO 6973	Special Topics
ECO 6983	Master's Thesis

Furthermore, up to 6 semester credit hours of non-Economics courses listed under the concentration-specific requirements in either the Financial Economics or the Business Data Analysis and Forecasting concentrations may be counted towards this electives requirement.

### C. Comprehensive Examination

Students must pass a comprehensive examination administered by the Economics Graduate Programs Committee.

**Total Credit Hours** **33**

### Master of Science Degree in Economics – Financial Economics Concentration

This concentration helps to prepare students seeking careers in the banking or financial sector that require finding solutions to real-world financial problems. This concentration facilitates the acquisition of both quantitative analytic skills in economics and financial modeling tools. The concentration-specific requirements offer students the opportunity to study domestic and international financial markets, as well as the principles of financial decision-making in the banking, investments, and corporate financial management professions.

Students who select this concentration must complete the 15 semester credit hours of core courses, 15 semester credit hours of concentration-specific courses, and 3 semester credit hours of electives. A Master's Thesis Option is not available for this concentration.

Code	Title	Credit Hours
<b>A. 15 semester credit hours of core courses</b>		<b>15</b>
ECO 6013	Microeconomic Theory	
ECO 6033	Macroeconomic Theory	
ECO 6103	Applied Econometrics I	
ECO 6113	Mathematical Methods for Economic Analysis	
STA 6003 or STA 5093	Statistical Methods in Research and Practice I Introduction to Statistical Inference	
<b>B. 15 semester credit hours of concentration-specific courses</b>		<b>15</b>
ECO 6403 or FIN 6213	Financial Economics Derivatives Markets and Instruments	
ECO 6303 or ECO 6583 or ECO 6713	Applied Econometrics II Special Topics in Econometrics/Forecasting Causal Inference and Machine Learning	
FIN 5023	Financial Management	
Any two of the following courses:		
FIN 5633	Investment Theory and Problems	
FIN 5733	Banking and the Financial Services Industry	
FIN 5813	Corporate Valuation	
FIN 5833	International Financial Management	
FIN 6313	Modeling of Financial Decision Making	

FIN 6323 Financial Data Analytics and FinTech Lab

**C. 3 semester credit hours of general economics elective courses 3**

All 6000-level or higher Economics courses may be used to fulfill the electives requirement, with the exception of ECO 6403, ECO 6961, ECO 6983, and the core courses for the degree.

Students in this concentration are encouraged to complete an internship in the financial sector to earn 3 semester credit hours through registration for ECO 6943.

**D. Comprehensive Examination**

Students must pass a comprehensive examination administered by the Economics Graduate Programs Committee.

**Total Credit Hours 33**

**Master of Science Degree in Economics – Business Data Analysis and Forecasting Concentration**

This concentration helps to prepare students seeking careers in the private or public sector that require analyses of economic or business data for the purposes of facilitating managerial decision-making, prediction, and causal explanation, by facilitating the acquisition of both quantitative modeling skills in econometrics and computational data analytics tool. The concentration-specific requirements offer students the opportunity to gain knowledge and skills in working with data and selecting appropriate econometric tools to tackle issues of causal inference, prediction, and theory-testing arising in economic, business, and policy contexts.

Students who select this concentration must complete the 15 semester credit hours of core courses, 15 semester credit hours of concentration-specific courses, and 3 semester credit hours of electives. A Master's Thesis Option is not available for this concentration.

Code	Title	Credit Hours
<b>A. 15 semester credit hours of core courses</b>		<b>15</b>

ECO 6013	Microeconomic Theory
ECO 6033	Macroeconomic Theory
ECO 6103	Applied Econometrics I
ECO 6113	Mathematical Methods for Economic Analysis
STA 6003	Statistical Methods in Research and Practice I
or STA 5093	Introduction to Statistical Inference

**B. 15 semester credit hours of concentration-specific courses 15**

**1. Econometric Tools**

Two or more of the following:

ECO 6303	Applied Econometrics II
ECO 6583	Special Topics in Econometrics/Forecasting
ECO 6713	Causal Inference and Machine Learning

**2. Computational Tools**

One or more of the following:

ECO 6763	Data Analytics with Python
STA 6033	SAS Programming and Data Management
STA 6233	R Programming for Data Science

**3. Advanced Analytic Tools and Applications**

Any number up to two of the following:

ECO 6633	Economic Design of Markets and Platforms
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IS 6713 Data Foundations

MKT 7093 Applied Econometrics in Marketing and Business Research

STA 6923 Introduction to Statistical Learning

STA 6933 Advanced Topics in Statistical Learning

**C. 3 semester credit hours of general economics elective courses 3**

All 6000-level or higher Economics courses may be used to fulfill the electives requirement, with the exception of ECO 6961, ECO 6983, and the core courses for the degree. Students in this concentration are encouraged to complete an internship to earn 3 semester credit hours through registration for ECO 6943.

**D. Comprehensive Examination**

Students must pass a comprehensive examination administered by the Economics Graduate Programs Committee.

**Total Credit Hours 33**

## Accelerated Master of Science in Economics

The Department of Economics offers an Accelerated Economics Program tailored to UTSA students who demonstrate exceptional motivation and qualifications and aspire to develop marketable skills in data-centric economic analysis and decision-making. Designed to facilitate a seamless transition into the Master of Science program and provide an expedited admission process, this program allows participants to initiate their graduate studies as early as the senior year of their undergraduate education.

The benefit of the accelerated program is it allows students to complete some graduate courses while still earning their undergraduate degree. In addition, students have the potential to reduce their time until graduation (e.g., students can start completing their graduate-level coursework during their senior year) and save money (e.g., students are not charged an application fee and potentially could double count one course); the program also creates an easier transition into graduate school (i.e., a known admission into graduate school while in their undergraduate education and a constant connection with UTSA faculty and staff).

### Program Admission Requirements

An individual seeking admission into the Accelerated Program in Economics must meet the following minimum requirements: 1) be a current UTSA student enrolled in a bachelor's degree program, 2) complete 90 semester credit hours in their bachelor's degree program by the end of the semester of application, and 3) have an overall UTSA grade point average of 3.0 or higher.

A free application must be completed and submitted online ([https://utsa.az1.qualtrics.com/jfe/form/SV\\_8c77p5n6G5wBrCe/](https://utsa.az1.qualtrics.com/jfe/form/SV_8c77p5n6G5wBrCe/)). If the applicant meets the minimum requirements for admission, they will be contacted for a meeting to review the applicant file, to provide the undergraduate degree plan expected of the applicant if admitted to the accelerated program, and to discuss the expectations of the program for eventual admission into graduate student status, which will include completion of the requirements for the applicant's undergraduate degree.

Applicants may be enrolled in any bachelor's degree program at UTSA. However, applicants pursuing a business degree, a STEM degree, a social science degree, or a public administration degree are likely to meet the Foundation Requirements of the master's program in Economics by the time of completion of the applicant's undergraduate degree.

## Degree Requirements

### Bachelor's Degree Requirements

Students accepted into the Accelerated Program in Economics are required to complete all the degree requirements associated with their bachelor's degree.

### Master of Science Degree Requirements

Students accepted into the Accelerated Program in Economics are required to complete the standard degree requirement of the Master's in Economics.

### Bachelor's/Master of Science Classification

Upon acceptance into the Accelerated Program in Economics, students are granted permission to enroll in graduate-level courses while still classified as undergraduates. Upon completing their bachelor's degree, students will receive a Keep Running with Us (KRWU) application to transition from undergraduate to graduate student status.

## Economics (ECO) Courses

### ECO 5003. Economic Theory and Policy. (3-0) 3 Credit Hours.

The opportunity for intensive study of micro- and macroeconomic concepts; the price system as it functions under competition, monopoly, and partial monopoly; national income measurement and determination; business cycles; money and banking; monetary policy; and fiscal policy and economic stabilization. This course has Differential Tuition.

### ECO 5023. Managerial Economics. (3-0) 3 Credit Hours.

Prerequisite: ECO 5003 and MS 5003, or their equivalents. Application of price theory to economic decisions of the firm. A problem-oriented approach emphasizing demand, production, and profit maximizing conditions, and their implications for output and pricing strategies under various market structures and types of organization. (Same as MBA 5513. Credit cannot be earned for both ECO 5023 and MBA 5513.) This course has Differential Tuition.

### ECO 6013. Microeconomic Theory. (3-0) 3 Credit Hours.

Prerequisite: ECO 6113 or doctoral standing. A rigorous introduction to the microeconomic theory of individuals, households, firms, and markets, that covers models of optimizing behavior by consumers and producers, choice under risk, partial equilibrium in competitive and imperfectly competitive markets, general equilibrium in exchange economies, and asymmetric information. This course has Differential Tuition.

### ECO 6033. Macroeconomic Theory. (3-0) 3 Credit Hours.

Prerequisite: Consent of instructor. This course is an introduction to advanced macroeconomic theory and policy. Topics include indicators and measures of economic activity, growth, inflation, unemployment, and stabilization policies by monetary and fiscal authorities, with rigorous analysis using models of consumption, investment, trade, and the aggregate economy. This course has Differential Tuition.

### ECO 6103. Applied Econometrics I. (3-0) 3 Credit Hours.

Prerequisite: STA 6003 or STA 5093 or equivalent. This course is an introduction to the theory and application of linear regression. Topics include ordinary least squares, difference-in-differences, regression discontinuity, and instrumental variables. A strong emphasis is placed on policy analysis and using regression to answer real-world questions. This course has Differential Tuition.

### ECO 6113. Mathematical Methods for Economic Analysis. (3-0) 3 Credit Hours.

Prerequisite: MAT 1133 or doctoral standing. This course is a survey of mathematical methods used in economic and business decision analysis, including functions of several variables, linear algebra, multivariable calculus, and static and dynamic optimization techniques. This course has Differential Tuition.

### ECO 6203. Industrial Organization. (3-0) 3 Credit Hours.

Prerequisite: ECO 3013 (or equivalent) and MAT 1133 (or equivalent). Theoretical and empirical methods for the analysis of market structure, firm conduct, and economic performance, especially through the lens of strategic interactions amongst firms. Topics may include price and nonprice competition, collusive behavior, auctions, entry deterrence, location strategies, product differentiation, advertising, research, and development. Regulation and antitrust issues are also examined. This course has Differential Tuition.

### ECO 6213. Public Economics. (3-0) 3 Credit Hours.

Prerequisite: An undergraduate microeconomics course. This course is a study of the rationale for collective action and government, including public goods, externalities and property rights, public and social choice, and regulation. Topics include incidence, equity, and distributional issues of taxation and public expenditure policies, and the economics of discrimination and segregation from theoretical and empirical perspectives. This course has Differential Tuition.

### ECO 6303. Applied Econometrics II. (3-0) 3 Credit Hours.

Prerequisite: ECO 6103, ECO 7063, or equivalent. Advanced topics in econometrics and their applications, including cross-section and panel data methods, discrete and limited dependent variables, and nonlinear models. This course has Differential Tuition.

### ECO 6323. International Trade Theory and Policy. (3-0) 3 Credit Hours.

Prerequisite: ECO 6013. This course provides an in-depth analysis of international trade, focusing on contemporary theories of trade and current global issues. Topics include the causes and consequences of international trade, trade practices under varying commercial policy approaches, and the effects of trade and globalization on the national economy. This course has Differential Tuition.

### ECO 6403. Financial Economics. (3-0) 3 Credit Hours.

Foundations in modern financial economics. Applies economic analysis to financial issues. Analytical methods to be discussed include inter-temporal utility models and general equilibrium theory. Financial topics include mean-variance frontier, capital asset pricing model, and arbitrage pricing theory. This course has Differential Tuition.

### ECO 6523. Labor Economics. (3-0) 3 Credit Hours.

Prerequisite: An undergraduate microeconomics course. This course is an application of economic theory to the market for labor. This course studies the determinants of employment and wages, with a special focus on the impacts of education, taxes, and welfare programs. This course has Differential Tuition.

### ECO 6543. Healthcare Economics and Policy. (3-0) 3 Credit Hours.

The application of economic principles and modeling to the healthcare marketplace. Students will be given the opportunity to apply theoretical and empirical economic analysis to business and public policy issues in the healthcare industry. (Same as BOH 6543. Credit cannot be earned for both BOH 6543 and ECO 6543.) This course has Differential Tuition.

**ECO 6553. Urban and Regional Economics. (3-0) 3 Credit Hours.**

Prerequisite: An undergraduate microeconomics course. On economic aspects of urban regions and cities, including housing markets, non-market valuation of local public goods and (dis)amenities, transportation, education, land use, pollution, and public sector service delivery. This course has Differential Tuition.

**ECO 6573. Game Theory and Business Strategy. (3-0) 3 Credit Hours.**

Prerequisite: ECO 6013 or consent of instructor. This course is a study of strategic decision-making in interactive situations with an emphasis on economics and business applications, providing an introduction to the basic theory of static and dynamic games of complete and incomplete information, with particular consideration for the strategic roles of commitment, credibility, reputation, unpredictability, and pre-emption. Applications may include bargaining, pricing, advertising, signaling, and contracting. This course has Differential Tuition.

**ECO 6583. Special Topics in Econometrics/Forecasting. (3-0) 3 Credit Hours.**

Prerequisite: ECO 6103 or consent of instructor. This course explores advanced econometric or forecasting techniques. Possible topics include, but are not limited to, structural econometric modeling, panel data analysis, multiple time series analysis, forecast combinations, and big data economic forecasts with emphasis on practical applications. May be repeated for credit, but not more than 6 semester credit hours will apply to a Master's degree. This course has Differential Tuition.

**ECO 6633. Economic Design of Markets and Platforms. (3-0) 3 Credit Hours.**

Prerequisite: ECO 3013 (or equivalent) and ECO 3123 (or equivalent), or doctoral standing. A study of organized markets and online platforms, with particular focus on how the design and rules of operation affect incentives, efficiency, and equity. This course examines real-world markets such as online auctions, internet platforms, matching markets, or barter exchange through the multi-faceted lens of market design, featuring qualitative analysis of documented rules, game-theoretic modeling, quantitative empirical analysis, or experimental simulation and analysis. This course has Differential Tuition.

**ECO 6713. Causal Inference and Machine Learning. (3-0) 3 Credit Hours.**

Prerequisite: ECO 6103 or both ECO 3123 (or equivalent) and STA 6003 (or equivalent). An introduction to modern causal inference and machine learning methods with a focus on applications to economics and business. Topics may include the potential outcomes framework, randomized control trials, matching, regression discontinuity, instrumental variables, difference-in-difference, synthetic controls, bootstrapping, LASSO, random forests, and neural networks. This course has Differential Tuition.

**ECO 6743. Applied Time Series Econometrics. (3-0) 3 Credit Hours.**

Prerequisite: ECO 6103 or consent of instructor. The course is a survey of techniques to analyze and forecast time series. Topics include, but are not limited to, time series data characteristics, autoregressive (AR) and moving average (MA) models and their integrated variants (ARIMA), and vector autoregressive (VAR) models for policy evaluation. The course offers the opportunity to gain hands-on experience with programming, data analysis, model building, statistically-informed interpretation, and data-driven decision-making, with practical applications using real-world datasets from economics, finance, marketing, and social sciences. This course has Differential Tuition.

**ECO 6763. Data Analytics with Python. (3-0) 3 Credit Hours.**

An introduction to data analytics with Python, including a selection of techniques for data munging and formatting, exploratory data analysis, data visualization, and econometrics/machine learning in problems of classification, regression, prediction, and forecasting. This course has Differential Tuition.

**ECO 6943. Economics Internship. (0-0) 3 Credit Hours.**

Prerequisite: Graduate standing, 15 semester credit hours of graduate work, and consent of instructor. Internship must be approved in advance by the Internship Coordinator and the student's Graduate Advisor of Record. Cannot count as an economics elective toward an M.B.A. with a concentration in Business Economics. Supervised full- or part-time off-campus work experience and training in economics. Individual conferences and written reports required. This course has Differential Tuition.

**ECO 6951. Independent Study. (0-0) 1 Credit Hour.**

Prerequisite: Graduate standing and permission in writing (form available) from the instructor and the student's Graduate Advisor of Record. Independent reading, research, discussion, and/or writing under the direction of a faculty member. For students needing specialized work not normally or not often available as part of the regular course offerings. May be repeated for credit, but not more than 6 hours, regardless of discipline, will apply to the degree. This course has Differential Tuition.

**ECO 6953. Independent Study. (0-0) 3 Credit Hours.**

Prerequisite: Graduate standing and permission in writing (form available) from the instructor and the student's Graduate Advisor of Record. Independent reading, research, discussion, and/or writing under the direction of a faculty member. For students needing specialized work not normally or not often available as part of the regular course offerings. May be repeated for credit, but not more than 6 hours, regardless of discipline, will apply to the degree. This course has Differential Tuition.

**ECO 6961. Comprehensive Examination. (0-0) 1 Credit Hour.**

Prerequisite: Approval of the appropriate Graduate Program Committee to take the Comprehensive Examination. Independent study course for the purpose of taking the Comprehensive Examination. May be repeated as many times as approved by the Graduate Program Committee. Enrollment is required each term in which the Comprehensive Examination is taken if no other courses are being taken that term. The grade report for the course is either "CR" (satisfactory performance on the Comprehensive Examination) or "NC" (unsatisfactory performance on the Comprehensive Examination). This course has Differential Tuition.

**ECO 6973. Special Topics. (3-0) 3 Credit Hours.**

Prerequisite: Consent of instructor. An organized course offering the opportunity for specialized study not normally or not often available as part of the regular course offerings. Special Topics courses may be repeated for credit when the topics vary, but not more than 6 hours, regardless of discipline, will apply to the degree. This course has Differential Tuition.

**ECO 6983. Master's Thesis. (0-0) 3 Credit Hours.**

Prerequisite: Permission of the Graduate Advisor of Record and thesis director. Thesis research and preparation. May be repeated for credit, but not more than 6 semester credit hours will apply to a Master's degree. Credit will be awarded upon completion of the thesis. Enrollment is required each term in which the thesis is in progress. This course has Differential Tuition.

**ECO 7013. Microeconomics I. (3-0) 3 Credit Hours.**

Prerequisite: ECO 6113, ECO 7053, or equivalent. This course develops canonical theories of choice, decisions, behavior, economic exchange, and strategic interactions, primarily through models of optimizing agents and pricing mechanisms. Topics may include consumer and producer choice, decision-making under risk, partial equilibrium in competitive and imperfectly competitive markets, general equilibrium, asymmetric information, and pricing mechanisms. This course has Differential Tuition.

**ECO 7053. Quantitative Methods for Business and Economics. (3-0) 3 Credit Hours.**

Prerequisite: MAT 1133 or equivalent. A review of mathematical tools and their application in modeling and solving business and economic problems. Topics include linear algebra, linear systems and solution methods, special and multivariate functions, differential and integral calculus, constrained optimization and Lagrange method, and optimal control and dynamic programming. This course has Differential Tuition.

**ECO 7063. Econometrics I. (3-0) 3 Credit Hours.**

Prerequisite: STA 6003 or STA 5093 or equivalent. This is a study of fundamental econometric techniques and applications. Topics include single equation models, least squares, and maximum likelihood estimation, properties of estimators, generalized least squares, general linear hypothesis, model selection techniques, simultaneous equations identification and estimation methods, distributed lag models, forecasting, and time-series models. This course has Differential Tuition.

**ECO 7303. Econometrics II. (3-0) 3 Credit Hours.**

Prerequisite: ECO 7063 or equivalent. Advanced topics in econometrics and their applications. Topics include panel data, discrete and limited dependent variables, and nonlinear and dynamic models. This course has Differential Tuition.