

Program Overview

Advanced skills in financial and economic analysis using large data sets have become increasingly important workforce credentials among firms seeking to gain a competitive edge in the marketplace; yet professionals with these skills have been in relatively short supply.

Finance and Economics are closely intertwined disciplines, with each field contributing insight across different dimensions to the same competitive challenges that firms face and policies that governments create. This intersection of interest and shared outcome create synergies between the disciplines that support offering a degree program that combines both economics and finance.

The Master of Science major in Quantitative Finance and Economics degree program is designed for undergraduate STEM-related majors or professionals with an interest in acquiring additional analytical skills to enhance their ability to excel in today's marketplace.

Application Requirements

The items listed below are required for admission consideration for applicable semesters of entry during the current academic year. Submission instructions, additional details, and changes to admission requirements for semesters other than the current academic year can be found on The Graduate College's website (<http://www.gradcollege.txstate.edu>). International students should review the International Admission Documents page (<http://mycatalog.txstate.edu/graduate/admission-documents/international/>) for additional requirements.

- completed online application
- \$55 nonrefundable application fee

or

- \$90 nonrefundable application fee for applications with international credentials
- Baccalaureate degree from a regionally accredited university (Non-U.S. degrees must be equivalent to a four-year U.S. Bachelor's degree. In most cases, three-year degrees are not considered. Visit our International FAQs (<https://www.gradcollege.txst.edu/international/faqs.html>) for more information.)
- Official transcripts required from **each institution** where course credit was granted
- A competitive GPA or a competitive GPA in the last 60 hours of undergraduate course work (plus any completed graduate courses)
- Prerequisites: A minimum grade of B in Principles of Microeconomics and Macroeconomics (ECO 2314, ECO 2315 or equivalent), Quantitative Methods and Statistics (QMST 2333 or equivalent), Business Calculus (Math 1329 or equivalent), and Business Finance (FIN3312 or equivalent)
- official GMAT/GRE (general test only) not required for applicants with a last-60-hours GPA of 3.5 or higher. If the last-60-hours GPA falls below the minimum requirement of 3.5, the official GMAT or GRE (general test only) with competitive scores will be required in order to be considered. The Graduate College will notify applicants via email should this occur.
- Responses to specific essay questions on the statement of purpose
- Resume/CV detailing work experience, extracurricular and community activities, and honors and achievements

- Three letters of recommendation from persons best able to assess the student's ability to succeed in graduate school

Given the required prerequisite courses and quantitative and analytical nature of the program, students with undergraduate degrees in Accounting, Economics, Finance, Information Systems, Engineering, Mathematics, Statistics, and Physics are suitable applicants, although students with other degrees may be considered. The program is targeted at full time students. However, part-time students can enroll in the program with a longer time frame for completion. Students must have completed the prerequisite courses by the end of the summer prior to the student's first fall semester of the program.

Applicants should refer to The Graduate College website for additional information regarding the admission process.

Approved English Proficiency Exam Scores

Applicants are required to submit an approved English proficiency exam score that meets the minimum program requirements below unless they have earned a bachelor's degree or higher from a regionally accredited U.S. institution or the equivalent from a country on our exempt countries list (<http://www.gradcollege.txstate.edu/international/language.html#waiver>).

- official TOEFL iBT scores required with an 80 overall and minimum individual module scores of
 - 19 listening
 - 19 reading
 - 19 speaking
 - 18 writing
- official PTE scores required with a 52
- official IELTS (academic) scores required with a 6.5 overall and minimum individual module scores of 6.0
- official Duolingo scores required with a 110 overall
- official TOEFL Essentials scores required with an 8.5 overall

This program does **not** offer admission if the scores above are not met.

Degree Requirements

The Master of Science (M.S.) degree with a major in Quantitative Finance and Economics requires 30 semester credit hours.

Course Requirements

| Code | Title | Hours |
|------------------------------------|---------------------------------------|-------|
| Required Courses | | |
| FIN 5322 | Investment Analysis | 3 |
| QFE 5310 | Microeconomic Theory and Applications | 3 |
| QFE 5315 | Macroeconomic Theory and Applications | 3 |
| QFE 5320 | Econometrics | 3 |
| QFE 5330 | Financial Theory and Corporate Policy | 3 |
| QFE 5340 | Financial Econometrics | 3 |
| Prescribed Electives | | |
| Choose 3 hours from the following: | | 3 |
| CIS 5357 | | |
| QFE 5335 | Financial Analytics | |
| QMST 5336 | | |
| Choose 9 hours from the following: | | 9 |

| | |
|------------|------------------------------------|
| CIS 5355 | |
| QFE 5353 | Fixed Income Analysis |
| QFE 5369 | Internship |
| QFE 5390A | International Economics |
| QFE 5392A | Financial Markets and Institutions |
| QFE 5392B | Securities Law |
| QFE 5395 | Independent Study |
| QMST 5335 | |
| QMST 5342 | |
| QMST 5343 | |
| QMST 5390A | |

Total Hours **30**

Comprehensive Examination

All candidates for graduate degrees must pass one or more comprehensive examinations, either written, oral, or both, covering at least the field of concentration.

Non-thesis students are required to take a written comprehensive examination in their last semester of the program. If a student fails to pass the comprehensive exam during the final semester, the student will be required to take GC 5100 during the following term to retake the failed portions of the comprehensive exam.

Students who do not successfully complete the requirements for the degree within the timelines specified will be dismissed from the program.

Master's level courses in Quantitative Finance and Economics: QFE

Courses Offered

Quantitative Finance and Economics (QFE)

QFE 5199B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is completed. Graded on a credit (CR), progress (PR), no-credit (F) basis.

1 Credit Hour. 5 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit

QFE 5299B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is completed. Graded on a credit (CR), progress (PR), no-credit (F) basis.

2 Credit Hours. 5 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit

QFE 5310. Microeconomic Theory and Applications.

This course provides a rigorous introduction to the methods of microeconomic theory and quantitative applications. Topics covered include consumer and producer theory, decision-making under uncertainty, markets and competition, general equilibrium, and game theory. Along with each topic, applications to empirical work are conducted by discussing and re-producing quantitative results of journal articles. Prerequisite: ECO 2314 and ECO 2315 and FIN 3312 and MATH 1329 and QMST 2333 all with grades of "B" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5315. Macroeconomic Theory and Applications.

This course explores macroeconomic policy arguments at an advanced level. Topics include traditional and modern theories of income, price, employment, long-run economic growth, business cycle models, role of monetary and fiscal policy in promoting economic stability, and empirical applications of macroeconomic theories. Prerequisite: ECO 2314 and ECO 2315 and FIN 3312 and MATH 1329 and QMST 2333 all with grades of "B" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5320. Econometrics.

This course combines theoretical framework of regression models with empirical applications in economics, finance, and public policy. Topics include different modeling techniques, assessment tools, and application of computer-assisted regression analysis to business and economic problems. Prerequisite: ECO 2314 and ECO 2315 and FIN 3312 and MATH 1329 and QMST 2333 all with grades of "B" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5330. Financial Theory and Corporate Policy.

This course provides an introduction to theories fundamental to the field of finance, with specific emphasis on corporate finance applications. Topics covered include theories of utility, state-preference, mean-variance optimization, asset pricing, and capital structure, as well as introduction to option pricing theories applied to corporate finance. Prerequisite: ECO 2314 and ECO 2315 and FIN 3312 and MATH 1329 and QMST 2333 all with grades of "B" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5335. Financial Analytics.

This course explores open-source software in a Finance context. This is a hands-on practical programming course with step-by-step source code. Students learn major financial models related to investments and corporate finance and how to write their own code to implement models in real-world scenarios as well as visualize and analyze financial data.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5340. Financial Econometrics.

This course explores corporate finance and asset pricing models in application of economic and financial data. Topics include estimation and inferences of financial models, principle component/factor analysis, capital asset pricing, volatility modeling, risk management, derivative pricing, portfolio allocation/optimizations, simulating financial systems, among others. Analytical software will be used to estimate models.

Prerequisite: QFE 5320 with a grade of "C" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5353. Fixed Income Analysis.

This course covers the valuation of a wide variety of fixed income securities and their derivatives, including money-market instruments, government bonds, repurchase agreements, interest-rate swaps, mortgage-backed securities, and corporate bonds. It focuses on analytic tools used in bond portfolio management and interest rate risk management. Prerequisite: FIN 5322 with a grade of "C" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5369. Internship.

This course is based on experiential learning. Students will integrate both professional and academic experiences through an internship with an external employer. Prerequisite: Must have completed 12 graduate hours and other prerequisites may be specified by the employer with the consent of Program Director and department chair and instructor approval.

3 Credit Hours. 1 Lecture Contact Hour. 20 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5390A. International Economics.

This course examines open economy macroeconomics and monetary issues of international economics. Topics include international financial markets, exchange rates, trade policies, international monetary systems, international financial crises and contagions, and applications of theory with data on international macroeconomic & financial behavior. Prerequisite: ECO 2314 and ECO 2315 and FIN 3312 and MATH 1329 and QMST 2333 all with grades of "B" or better or advisor approval.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

QFE 5390B. Research Topics in Sports Economics.

This course provides a statistically rigorous introduction to the field of sports economics at the graduate level. Students will be required to read recent literature in the field of sports economics, with a focus on empirical research using data from US professional baseball, US and English professional soccer, and US collegiate sports. Research topics will cover both theoretical background and empirical results, covering such topics as the demand for sport, the structure of the sports industry, and the labor markets of sport. Prerequisite: QFE 5310 and QFE 5320 both with grades of "C" or better or instructor approval.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

QFE 5390C. Big Data in Economics and Finance.

This course introduces cutting-edge big data techniques for analyzing financial markets and economic phenomena. Students will learn Python fundamentals, data sources, and specialized machine learning methods such as factor models, regularization, dimensionality reduction, and neural networks. Emphasis is placed on predictive accuracy and robust model validation, equipping participants with the ability to handle complex data structures in practice. Through hands-on projects, students gain practical experience implementing these models to uncover insights in economic and financial data. This course prepares future analysts with advanced quantitative skills that can be applied in finance, economics, and beyond. Prerequisite: QFE 5320 with a grade of a "C" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

QFE 5392A. Financial Markets and Institutions.

This course focuses on US financial markets and institutions, with a lesser focus on their international counterparts. Topics covered include the characteristics and roles of the various financial markets including money and capital markets, equity and debt markets; relationships between the financial markets and financial institutions; interest rate fundamentals; and the impact of regulators and central banking on financial markets and institutions. Prerequisite: ECO 2314 and ECO 2315 and FIN 3312 and MATH 1329 and QMST 2333 all with grades of "B" or better or advisor approval.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

QFE 5392B. Securities Law.

This course explores the role of U.S. federal securities laws that enable market participants to make legal, ethical, and strategic business decisions. Topics covered include the Securities Act of 1933, the Securities Exchange Act of 1934, Sarbanes-Oxley, Dodd Frank, and other topical legislation, as well as global regulatory, judicial, and litigation trends.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5392C. Active Portfolio Management.

This course focuses on practical applications of the modern portfolio theory. It develops innovative processes to uncover raw signals of asset returns and convert them to superior return forecasts. These forecasts are used to construct portfolios and control risk. This course also teaches how to use economics, econometrics, and operation research to solve complicated practical investment problems. It additionally covers a comprehensive set of concepts for guiding the process of active investment management. Prerequisite: QFE 5330 and QFE 5320 both with grades of "C" or better or advisor approval.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

QFE 5392D. Financial Derivatives with Python.

This course covers financial derivatives, their pricing and their use for hedging. The types of derivatives studied are futures, forwards, vanilla and exotic options. Mathematical tools such as binomial trees, Monte Carlo methods, implied volatilities, replication portfolios, and calculation of the Greeks are introduced. Python programming language is used to implement the covered models. Prerequisite: QFE 5330 and QFE 5320 both with grades of "C" or better or instructor approval.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

QFE 5395. Independent Study.

This course focuses on individual in-depth study. Students, in consultation with a faculty member, choose a selected area of study in Quantitative Finance or Economics on a specialized project. Prerequisite: instructor and program director.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QFE 5399A. Thesis.

This course represents a student's initial thesis enrollment. No thesis credit is awarded until student has completed the thesis in Quantitative Finance & Economics. Graded on a credit (CR), progress (PR), no-credit (F) basis.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Credit/No Credit

QFE 5399B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is completed. Graded on a credit (CR), progress (PR), no-credit (F) basis.

3 Credit Hours. 5 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit

QFE 5599B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is completed. Graded on a credit (CR), progress (PR), no-credit (F) basis.

5 Credit Hours. 5 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit

QFE 5999B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is completed. Graded on a credit (CR), progress (PR), no-credit (F) basis.

9 Credit Hours. 9 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit