

The Credential in Quantitative Financial Economics (QFE)
Economics Department, UNC at Chapel Hill
NASDAQ Educational Foundation

Description

The goal of the Credential in Quantitative Financial Economics (QFE) is to train students as financial economists, providing all the quantitative tools necessary to bring theory into practice. The Credential is graciously sponsored by, and implemented in conjunction with, the NASDAQ Educational Foundation.

Financial Economics is a sub-field of economics wherein money is on both sides of a trade between parties. The trade typically exchanges money now for money at some point in the future, and is subject to uncertainty. There are traditionally two branches of Financial Economics: Asset Pricing (e.g. macro investment analysis) and Corporate Finance (e.g. capital budgeting decisions). The QFE provides the foundation for both branches, but the focus is on the former.

The modern financial economist is deluged with data. Financial market transactions are available across myriad asset classes and recorded at high frequencies. Rigorous quantitative analysis is required to separate the signal from the noise. The QFE will reinforce the statistical and econometric skills of our current undergraduate curriculum, and introduce the students to an array of computational tools.

In addition to formal coursework, we intend to offer students pursuing the QFE credential opportunities to attend a speaker series, as well as participate in recruiting events.

Courses

Econ 425 Financial Economics (3 credits; Fall)

A central theme underlies the course: How does a risk averse individual allocate their funds? Students begin by defining and measuring risk, making connections to their microeconomics training. They then develop and use asset pricing models to explore the interplay between risk and return. These pricing tools are then applied to several assets, including equities, fixed income, and foreign exchange. Finally, students use these tools to develop a mean-variance optimal portfolio allocation. Along the way, students are introduced to basic quantitative tools, and participate in myriad practical applications.

Econ 493 Practicum in Quantitative Financial Economics (1 credit; Spring)

Working in conjunction with Econ 525, this practicum provides students the opportunity to implement and test the models being developed in Econ 425. Students will work with multiple data sources and programming platforms, and engage in a series of practical experiments using live market information.

Econ 525 Advanced Financial Economics (3 credits; Spring)

Building upon the foundation developed in Econ 425, students take part in each of the five steps of the asset allocation process: 1) (Explore) How does the modern financial economist acquire, clean and transform data? 2) (Explain) What drives asset returns? 3) (Predict) Can we forecast returns? 4) (Allocate) How do we form a portfolio in the presence of risk? 5) (Protect) How do we assess and manage risk?

Bootcamps

Introduction to Excel for Financial Economists (Intended to be taken at the beginning of Econ 425)

This is a half-day bootcamp designed to introduce students to Excel as it applies to Financial Economics. Students will work in a hands-on laboratory environment to learn basic excel functionality such as formulas, cell referencing, look up tables, etc...Next, students will progress to applications that are motivated by their work in Econ 425, such as the Data Analysis Toolpak, Solver, matrix formulas, and basic regressions.

Introduction to Financial Data and Trading (Intended to be taken at the beginning of Econ 425)

This is a half-day bootcamp designed to acquaint students with primary and secondary sources of macroeconomic and financial data, such as the BEA, BLS, NASDAQ, SEC, Yahoo Finance, WRDS, etc... Secondly, the students will be introduced to an online trading platform, and engage in “live” trading.

Introduction to Macro-Strategy

This is a half-day bootcamp designed to connect the macro-economy to the financial markets. Students will use their time during this bootcamp to develop their own investment thesis. Students will be given an investment objective, investable universe, and constraints, and then be tasked with developing a suitable investment thesis that is couched within the current economic and financial market environment. For example, a student might be prompted with “You are a U.S.-based consumer goods company that exports to Europe. Given your current economic and financial outlook, should you be concerned with currency exposure? If so, how might you hedge that exposure? If not, why not?”. Students will develop their theses throughout the day under instructor supervision, and must submit a written thesis by the end of the bootcamp. The theses will be evaluated soon thereafter. A score of 80% is required for a satisfactory completion of this bootcamp.

Introduction to Matlab for Financial Economists (Intended to be taken at the beginning of Econ 525)

This is a full day bootcamp designed to introduce students to Matlab as it applies to Financial Economics. Students will work in a hands-on laboratory environment to learn basic Matlab functionality such as data importing and storage, loops, plotting, array formulas, etc..Next, students will progress to application that are motivated by their work in Econ 525 and Econ 493, such as optimization, basic regressions and inferences, function referencing and writing, etc...

Requirements

Any student meeting the proper pre-requisites may register for Econ 425, which is completed through Connect Carolina. Registration for Econ 493 and Econ 525 is handled by the Economics Department, and requires interested students to complete the QFE application in the semester prior to their entry into Econ 493 and Econ 525. Items such as major field of study, prior coursework, seniority, programming and financial background, as well as career goals are taken into consideration when prioritizing candidates for entry into the credential. The QFE application will generally be available in the middle of fall each year, and can be found on the on Prof. Aguilar's website: www.unc.edu/maguilar.

To be awarded the QFE Credential students must earn a grade of $\geq C$ in Econ 425, Econ 493, and Econ 525, as well as complete satisfactorily the bootcamps listed nearby. Exceptions to these requirements, such as acceptance of transfer credit, or substitution of Econ 423 for Econ 425, and the like, are subject to the Director's discretion. Students earning a grade of $\geq B+$ in Econ 425, Econ 493, and Econ 525 are awarded a mark of distinction on their credential.

Suggested Schedule

Although not required, we recommend students complete the Excel and Financial Data and Trading bootcamps and Econ 425 in the fall of their junior year. We also recommend students take the Matlab bootcamp, Econ 525, and Econ 493 in the spring of their junior year. This cadence allows for proper training in advance of Junior summer internships or participation in the Herbert Brown Mayo Summer Research Fellowship, as well as participation in extracurricular activities such as Tar Heel Alpha during their senior year.

In addition to the classes mentioned above, we also recommend taking Econ 460, Econ 560, Econ 570, and Econ 575, along with a bevy of Statistics, Finance, and Computer Programming classes.

Mike Aguilar, Director
Credential in Quantitative Financial Economics
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