

Received by the Graduate Council—November 6, 2017

GRADUATE COUNCIL CURRICULUM COMMITTEE (GCCC)
First Meeting/2017-18 Academic Year
October 9, 2017

SECTION B – Recorded, but further approval needed before inclusion in the Graduate Catalog p. 1 of 2

COLLEGE OF LIBERAL ARTS AND SCIENCES

Department of Economics

BOT/
IBHE Other Catalog Change 2017-18 Graduate Catalog

Masters of Science in Financial Engineering

The M.S. in Financial Engineering program is a ~~Master's~~ master's level interdisciplinary degree program with courses in economics, statistics, computer science, and finance for a student seeking a practical program of study to prepare for technical or administrative positions in the financial industry. The objective of the program is to provide graduates with the theoretical and technical skills necessary to analyze various financial markets and to develop and implement models to describe the behavior of those markets.

The program requires a minimum of 30 ~~credit-semester~~ hours including one optional (3 ~~credit-semester~~ hour) preparatory class, seven required courses spread across the Departments of Economics ~~and~~ Statistics, and Computer Science and the Division of Statistics, plus two electives. All courses for the M.S. in Financial Engineering must be completed within six years immediately preceding awarding of the degree. Students must earn a grade point average of at least 3.00 in courses used toward the M.S. in Financial Engineering, and courses used for the M.S. in Financial Engineering may also be used to satisfy requirements for other graduate degree programs.

An applicant is required to have a baccalaureate degree from an accredited institution with at least 15 semester hours in finance, economics, computer science, or program approval. Ideal applicants will have the following pre-requisites:

- At least two semesters (ideally three) of calculus
- At least one course in linear algebra
- At least one course in computer programming (C++, Fortran, Java, Python, or similar language)
- At least one course in ~~calculus~~ calculus-based statistics.

Applicants must also meet all requirements outlined by the NIU Graduate School. Final acceptance decisions will be made by the Department of Economics Graduate Committee or its designee.

Check departmental information for any additional requirements.

Course Requirements

CSCI 501 - Programming Principles in C++ (3)

OR equivalent computer science course approved by ~~p~~Program ~~d~~Director (3)

ECON 584X - Financial Derivatives

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OR STAT 584 - Financial Derivatives for Actuaries (3)

ECON 591 - Mathematical Methods for Economics (3)¹

ECON 642 - Financial Engineering (3)

ECON 647 - Optimal Portfolio Choice (3)

ECON 699A - Master's Research Component: Master's Thesis (1-6)

OR ECON 699B - Master's Research Component: Master's Research Paper (3)

OR a substantial research paper written in a 500- or 600-level economics course and approved by the professor teaching the course. (3)

ECON 791 - Computational Economics (3)

OR MATH 662 - Numerical Analysis (3)

OR ~~n~~Numerical ~~m~~Methods ~~c~~Course ~~a~~Approved by ~~p~~Program ~~d~~Director (3)

STAT 570 - Introduction to Probability Theory (3)

STAT 583 - Stochastic Processes I (3)

Two of the following (6)

CSCI 661 - Parallel and Distributed Programming Methods (3)

CSCI 662 - Programming Non-Traditional Architectures (3)

ECON 649 - Algorithmic Trading (3)

ECON 740 - Financial Economics I (3)

ECON 743 - Financial Economics II (3)

ECON 793 - Financial and Time-Series Econometrics (3)

ECON 795 - Internship in Economics (3)

FINA 607 - Financial Analysis (3)

FINA 674 - Risk Management I (3)