



Certificate Program for Undergraduates

NORTHWESTERN UNIVERSITY



YOUR CAREER **STARTS** HERE

The job market is more competitive than ever, but sharp analytical skills are always in demand.

In the Kellogg Certificate Program for Undergraduates, you'll master graduate-level material in business analytics and finance under the guidance of distinguished professors from Northwestern University's Kellogg School of Management. But this quantitative program isn't just for students interested in finance or consulting — the critical thinking skills you'll gain here are valuable in any line of work.

Whether you study English or engineering, economics or art history, these specialized skills will help you launch a successful career. As you learn to approach the broad subject with precision, you'll be uniquely qualified to break down the trends in science, technology, economics and politics on which many major business decisions hinge.

The 4-course program is open* to all Northwestern University juniors and seniors, regardless of home school or major, who have completed advanced coursework in calculus, linear algebra, probability, econometrics/statistics and microeconomics.

THE RIGHT TRACK

Certificate Program students earn a certificate in either Financial Economics or Managerial Analytics. FE students — who generally are interested in pursuing a career in finance or consulting — learn valuation tools and financial applications, while the MA students develop analytic tools and skills used in business planning, operations and consulting. Each track consists of four courses.

Students in both tracks hone their critical-thinking and communication skills and learn to navigate the complex terrain of the business world. Graduates may work in banking, investment banking, insurance, asset management or consulting. They may work in any sector: private, public, for-profit or nonprofit.

**Application required.*

THE **KELLOGG** DIFFERENCE

At Kellogg we believe in the transformative power of organizations and markets.

Within our intellectually vibrant, global community we understand that only through the power of collective achievement can we bring about the change that tomorrow needs today. At Kellogg you'll learn how to build strong organizations through a balanced, yet rigorous, team-based approach, one that will give you a profound understanding of markets, an innate ability to lead, and a deep-seated passion for working with others. We invite you to learn with us.

CAREER SERVICES AND MORE

A partnership between the Kellogg School and Northwestern University Career Services allows students to work with a dedicated adviser who combines Career Services' knowledge of undergraduate job opportunities with the Kellogg School's expertise in financial and consulting organizations. The Certificate Program's full-time career services adviser helps students connect with the leading employers of undergraduates for summer internships and full-time jobs upon graduation.

Certificate Program alumni work in large and small, for profit and nonprofit, and government and private sector organizations all over the world. Some also choose to attend graduate school.

Certificate Program students also have exclusive use of four study-group rooms and a student lounge. Classes are held in two large classrooms built to Kellogg's specifications.



Certificate in **FINANCIAL ECONOMICS**



All FE certificate students take the following four courses.

Principles of Finance

This foundation course for the FE certificate is taken in the fall. The course discusses the principles of finance and focuses on the effects of time and uncertainty on value. Students will learn valuation, including discounted cash flows; equity and debt valuation; the term structure of interest rates; portfolio theory; asset pricing; and efficient market theory. The course also examines firms' financing decisions, including capital budgeting, capital structure and payout policy.

Investments

Students learn about active portfolio strategies in bonds and stocks, optimal portfolio selection from the perspective of individual and institutional investors, and the role of style and performance benchmarks in portfolio management. Special topics such as performance evaluation and trading costs are also covered.

Derivatives

This course covers the fundamentals of forwards, futures, options and related derivative securities. Associated arbitrage pricing models and the use of derivatives in risk management are discussed in depth. Topics include cash-and-carry strategies in forward markets, the notions of cost-of-carry and convenience yield, the optimal exercise of American options, the binomial model, and the option pricing theory of Black, Merton and Scholes.

Topics in Financial Economics

This course focuses on current issues in finance, so specific content can vary from year to year. The most recent focus is on international finance, including international financial instruments, markets, and institutions. Previous topics have included value investing and fixed income.

Students earning the Financial Economics certificate will be prepared for responsibilities that include:

- ▶ Cash-flow analysis and financial modeling
- ▶ Obtaining, financing and comparing capital structure choices
- ▶ Analysis of potential mergers and acquisitions
- ▶ Capital budgeting and capital allocation decisions
- ▶ Portfolio investment and asset management
- ▶ Risk management strategies
- ▶ Researching cash-flow and valuation estimates
- ▶ Facilitating and preparing for client meetings

A woman with curly brown hair, wearing a dark grey blazer over a maroon shirt, is speaking and gesturing with her right hand. She is holding a smartphone in her left hand. In the background, a man is seated at a desk, looking down and writing. The setting appears to be a classroom or lecture hall.

Certificate in **MANAGERIAL ANALYTICS**

All MA certificate students take the following four courses.

Pricing

Students compare the three main ways to set prices: haggling/negotiation, posted price and auctions, and learn how to choose the best method in a given situation. They will also explore customizing the price of the same product or service to different segments, using optimization models to set prices when volume is uncertain, and pricing multiple products. This course also offers an introduction to some of the main techniques (regression, conjoint analysis, EVC) for gathering information about buyer valuations and demands.

Operations and Supply Chain Strategy

This course provides a framework to discover the key capabilities an operation and a supply chain must develop to support the business strategy of a firm, and the relationship between the desired capabilities and the structure of a supply chain. Students will learn about methodologies that support operations and supply chain strategy and planning decisions, using case studies and development of analytical spreadsheet models.

Principles of Finance

This course discusses the principles of finance and focuses on the effects of time and uncertainty on value. Students will learn valuation, including discounted cash flows; equity and debt valuation; the term structure of interest rates; portfolio theory; asset pricing; and efficient market theory. The course also examines firms' financing decisions, including capital budgeting, capital structure and payout policy.

Topics in Managerial Analytics

This course focuses on current issues in managerial analytics, and specific content can vary from year to year. The current course focuses on empirical methods — how managers make sense of massive amounts of information to develop and implement a business strategy.

Students earning the Managerial Analytics certificate will be prepared for responsibilities that include:

- ▶ Analyzing sales and operational data, spotting trends and developing forecasts
- ▶ Analysis of potential mergers and acquisitions
- ▶ Investment decisions in a supply chain network
- ▶ Analyzing and optimizing supply chain networks
- ▶ Analysis to support pricing decisions
- ▶ Statistical analysis of current trends in business practices, products and industry competition
- ▶ Assessing current trends in business practices, products and industry competition
- ▶ Facilitating and preparing for client meetings

APPLY

Students who apply must demonstrate excellent quantitative and communication skills and have taken prerequisite courses in advanced calculus and linear algebra, probability, econometrics/statistics and microeconomics. Any Northwestern University student who meets these criteria may apply, regardless of school or major. The program is for Northwestern students only. We do not accept applications from high school seniors, students attending other universities, or anyone who is not currently a Northwestern University undergraduate.

The program accepts about 100 students each year — 50 in each certificate track. Students apply at the end of their sophomore or junior years for participation during the following school year. Applications are due at the end of the winter quarter and admission decisions are made during the spring quarter.

The Financial Economics and Managerial Analytics certificates are not graduate degrees. Certificate Program students receive their undergraduate diplomas from their home schools — not the Kellogg School — but their transcripts will reflect a completed certificate from Kellogg.

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Northwestern University is an equal opportunity, affirmative action educator and employer.

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