Purpose of Certificate Program

- Prepare students for careers in financial services, consulting, and any field that analyzes data to make decisions
- Teach business analytics, strategic models and tools, and business applications
- Learn about different business scenarios including mergers and acquisitions, evaluation, asset management, new products, strategy formulation, supply chain design, and pricing
- Develop critical thinking and business application skills

At a Glance

- Application required; must be current NU undergraduate student to apply
- Two certificates offered: 1) Financial Economics (FE) and 2) Managerial Analytics (MA)
- Each certificate consists of four courses, taught at advanced level by Kellogg faculty; may take the courses over one or two years
- Curriculum is analytical in nature and requires advanced math knowledge and skills
- Rigorous prerequisite courses required in calculus and linear algebra, probability, statistics/econometrics, and microeconomics; students interested in the MA certificate must also take a course in optimization (see reverse for prerequisite details)
- Both certificates open to all NU students who would satisfy the course prerequisites by fall of enrollment in the program
- Career development counselor works exclusively with CPU students on career planning and finding jobs and internships

Financial Economics (FE)	**FE Courses**	**Students earning the certificate will be prepared for responsibilities that include:**
• Focus on corporate finance, capital markets and securities pricing • All NU students who meet the prerequisites can apply, regardless of school or major	• Principles of Finance • Investments • Derivatives • Topics in Financial Economics (this year, international finance)	• Cash flow analysis and financial models • 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
Managerial Analytics (MA)	**MA Courses**	**Students earning the certificate will be prepared for responsibilities that include:**
• Focus on applying business analytical skills in context of finance, marketing, operations and strategy decisions • All NU students who meet the prerequisites can apply, regardless of school or major	• Principles of Finance • Pricing • Operations and Supply Chain Strategy • Topics in Managerial Analytics (this year, empirical methods)	• Analyzing sales and operational data, spotting trends and developing forecasts • Analysis of potential mergers and acquisitions • Investment decisions in supply chain networks • Analyzing and optimizing supply chain networks • Analysis to support pricing decisions through analysis • Statistical analysis of current trends in business practices, products and industry competition • Facilitating and preparing for client meetings

Admission

- Accept about 50 students in each certificate every year (maximum total of 100)
- Applications due during winter quarter; admission decisions made during spring quarter
- Admission decisions based on application form, winter term grades, one faculty reference, and a brief essay
- A (minimum) combined 3.0 average among all prerequisite courses is required.

More Information

ph: 847-467-4600 | email: kelloggundergrad@northwestern.edu | *www.kellogg.northwestern.edu/certificate*

To be eligible for the **Financial Economics (FE) Certificate,** students must complete several prerequisite courses in four academic areas: calculus and linear algebra, probability, statistics/econometrics, and microeconomics. The **Managerial Analytics (MA) Certificate** requires prerequisite courses in the same four areas, plus a course in optimization. Most of the prerequisite courses are offered in both WCAS and McCormick, and students may take them in either or both schools. Students should be well on their way to completing the prerequisites when they apply to the CPU during their sophomore or junior year. A combined 3.0 average among all prerequisite courses is required.

Listed below are the courses that satisfy the various CPU prerequisite requirements, organized by academic area. Please be aware that most of these courses have their own prerequisites, which are determined by the departments offering them.

Prerequisite Subject	Financial Economics Certificate	Managerial Analytics Certificate
1. Calculus and Linear Algebra	One sequence required	One sequence required
	Course sequences available • MATH 230, 234 and 240* • MATH 290-1,2,3 (MENU) • MATH 291-1,2,3 (MENU accelerated) • MATH 281-1,2,3 (for ISP students) • MATH 285-1,2,3 (for MMSS students) • Honors Calculus ES-APPM 252-1 and 2 (for McCormick Students) McCormick students must also take one Engineering Analysis combinations: • GEN_ENG 206-1 and 2 **or** • GEN_ENG 205-1 and 2 * *McCormick students do not have to take Math 240 as long as they take an Engineering Analysis sequence.*	**Course sequences available** • MATH 230, 234 and 240* • MATH 290-1,2,3 (MENU) • MATH 291-1,2,3 (MENU accelerated) • MATH 281-1,2,3 (for ISP students) • MATH 285-1,2,3 (for MMSS students) • Honors Calculus ES-APPM 252-1 and 2 (for McCormick Students) McCormick students must also take one Engineering Analysis combinations: • GEN_ENG 206-1 and 2 **or** • GEN_ENG 205-1 and 2 * *McCormick students do not have to take Math 240 as long as they take an Engineering Analysis sequence.*
2. Probability	One course required from either school	One course required from either school
	WCAS: • MATH 310-1 • STAT 320-1 • STAT 383-0 (ISP) • MATH 385-0 (MMSS) **McCormick:** • IEMS 202 -0 • EECS 302-0 • BMD_ENG 220-0 • CHEM_ENG 312-0	**WCAS:** • MATH 310-1 • STAT 320-1 • STAT 383-0 (ISP) • MATH 385-0 (MMSS) **McCormick:** • IEMS 202-0 • EECS 302-0 • BMD_ENG 220-0 • CHEM_ENG 312-0
3. Econometrics/Statistics	One sequence required (only available in WCAS)	One option required from either or both schools
	WCAS: • ECON 381-1 and 2 • MATH 386-1 and 2 (MMSS)	**WCAS:** • ECON 381-1 • MATH 386-1 (MMSS) • STAT 320-2 and STAT 350* **McCormick:** • IEMS 303-0 and IEMS 304-0* **Both WCAS & McCormick:** • STAT 320-2 and IEMS 304-0* **IEMS 304 or STAT 350 may be taken concurrently with CPU courses if desired*
4. Microeconomics	One course required (only available in WCAS)	One course required (only available in WCAS)
	WCAS: • ECON 310-1 • MMSS 211-1	**WCAS:** • ECON 310-1 • MMSS 211-1
5. Optimization	Not Required for Financial Economics Certificate	One course required from either school
	N/A	**WCAS**: • MATH 368-0 **McCormick:** • IEMS 313 -0 • CHEM ENG 345-0