KELLOGG CERTIFICATES

kellogg.northwestern.edu/certificate

Overview
The Kellogg School of Management administers a program leading to an undergraduate certificate in either Financial Economics or Managerial Analytics. Each certificate requires completion of four courses taught at an advanced level by Kellogg faculty members. Building on students’ existing analytical skills, the certificate curriculum serves as excellent preparation for careers in consulting, financial services, and other data-driven professions and/or for doctoral or professional school programs.

Certificate students also benefit from one-on-one counseling from a dedicated career development specialist to help them secure summer internships and full-time employment.

Application and Program Requirements
About 100 students each year are accepted into the certificate program through a competitive application process. Any Northwestern undergraduate who meets the program’s rigorous selection criteria may apply. Program prerequisites include advanced calculus and microeconomics. Additional program corequisites include intermediate probability & statistics and advanced econometrics & statistics.

Certificate Prerequisites
The program prerequisites should be completed prior to applying to the program. One prerequisite course may be taken during the Winter Quarter of the year you apply. All other program prerequisites should be completed no later than the fall of the year you apply.

### Course Calculus Prerequisite

**Option 1: Regular Math**
- MATH 230-1 Multivariable Differential Calculus
- MATH 230-2 Multivariable Integral Calculus

**Option 2: MENU**
- MATH 290-2 MENU: Linear Algebra and Multivariable Calculus
- MATH 290-3 MENU: Linear Algebra and Multivariable Calculus

**Option 3: MENU Accelerated**
- MATH 291-2 MENU: Intensive Linear Algebra and Multivariable Calculus
- MATH 291-3 MENU: Intensive Linear Algebra and Multivariable Calculus

**Option 4: ISP**
- MATH 281-1 Accelerated Mathematics for ISP: First Year
- MATH 281-2 Accelerated Mathematics for ISP: First Year

**Option 5: MMSS**
- MATH 285-2 Accelerated Mathematics for MMSS: First Year
- MATH 285-3 Accelerated Mathematics for MMSS: First Year

**Option 6: McCormick**
- MATH 228-1 Multivariable Differential Calculus for Engineering
- MATH 228-2 Multivariable Integral Calculus for Engineering

**Option 7: McCormick Honors**
- ES_APPM 252-1 Honors Calculus for Engineers
- ES_APPM 252-2 Honors Calculus for Engineers

**Option 8: Data Science Major**
- STAT 228-0 Series and Multiple Integrals *

*Must also take MATH 230-1

### Microeconomics Prerequisite

Complete one of the following courses:

**Option 1**
- ECON 310-1 Microeconomics *

**Option 2:** MMSS
- MMSS 211-1 Social Science Theories & Meth - First Yr

*Please note that ECON 201-0 and ECON 202-0 are prerequisites

### Certificate Corequisites

Program corequisites must be completed within a year of entering the program. Please note that program corequisites may be prerequisites for individual certificate courses. Take this into account when planning your course schedule.

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td><strong>Probability Corequisite</strong></td>
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<tr>
<td><strong>Option 1</strong></td>
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| MATH 314-0 | Probability and Statistics for Econometrics *

| **Option 2** |
| MATH 310-1 | Probability and Stochastic Processes *

| **Option 3:** MENU |
| MATH 311-1 | MENU: Probability and Stochastic Processes *

| **Option 4** |
| STAT 320-1 | Statistical Theory & Methods 1 *

| **Option 5:** ISP |
| STAT 383-0 | Probability and Statistics for ISP

| **Option 6:** MMSS |
| MATH 385-0 | Probability and Statistics for MMSS

| **Option 7:** McCormick |
| IEMS 302-0 | Probability

| **Option 8:** McCormick |
| ELEC_ENG 302-0 | Probabilistic Systems

| **Option 9:** McCormick |
| BMD_ENG 220-0 | Introduction to Biomedical Statistics

| **Option 10:** McCormick |
| CHEM_ENG 312-0 | Probability and Statistics for Chemical Engineering

*MATH 226-0 is a prerequisite or corequisite for these courses. Review prerequisites when planning your schedule

### Econometrics/Statistics Corequisite

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<tr>
<td><strong>Econometrics/Statistics Corequisite</strong></td>
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| ECON 381-1 | Econometrics

| **Option 2:** MMSS |
| MATH 386-1 | Econometrics for MMSS

| **Option 3:** McCormick |
| IEMS 303-0 | Statistics
| IEMS 304-0 | Statistical Learning for Data Analysis

| **Option 4** |
| STAT 320-2 or STAT 383-0 | Probability and Statistics for ISP
| STAT 350-0 | Regression Analysis

| **Option 4:** Data Science Major or Minor with R** |
| STAT 301-1 | Data Science 1 with R
| STAT 301-2 | Data Science 2 with R
| STAT 301-3 | Data Science 3 with R

| **Option 5:** Data Science Major or Minor with Python** |
| STAT 303-1 | Data Science 1 with Python
| STAT 303-2 | Data Science 2 with Python
| STAT 303-3 | Data Science 3 with Python
Students should not plan to take these courses unless they have been admitted to the major or minor.

See kellogg.northwestern.edu/certificate for a complete explanation of the program prerequisites and corequisites.