QUANTITATIVE ANALYSIS CONCENTRATION

Emphasizes the skills needed to analyze market data in fast-paced industries such as manufacturing, financial services, and advertising, and provides the technical training required to engage in consulting. There is also a continued need for quantitative analysis by lawyers, accountants, engineers, health service administrators, urban planners, and local, national, and international government agencies. The concentration prepares students for jobs that entail forecasting, data analysis and quantitative economics, and provides a solid foundation for graduate study in economics and business.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 440</td>
<td>Advanced Econometrics</td>
<td>4</td>
</tr>
<tr>
<td>STAT 331</td>
<td>Statistical Computing with R</td>
<td>4</td>
</tr>
</tbody>
</table>

**Approved Electives: 1**

Select from the following courses: 20

### Analytics

- BUS 393 Database Systems in Business
- BUS 421 Marketing Analytics and Business Intelligence
- BUS 441 Computer Applications in Finance
- BUS 491 Decision Support Systems
- ECON 339 Econometrics 2
- ECON 395 Programming for Economics and Analytics 3
  - or BUS 392 Business Application Development
  - or CSC 101 Fundamentals of Computer Science

### Statistics and Decision Analysis

- ECON 406 Applied Forecasting
- ECON 409 Probability Models for Economic Decisions
- IME 301 Operations Research I
- IME 305 Operations Research II
- STAT 323 Design and Analysis of Experiments I
- STAT 324 Applied Regression Analysis
- STAT 330 Statistical Computing with SAS
- STAT 416 Statistical Analysis of Time Series
- STAT 419 Applied Multivariate Statistics
- STAT 425 Probability Theory
- STAT 426 Estimation and Sampling Theory
- STAT 427 Mathematical Statistics

### Mathematical Foundations

- ECON 408 Mathematical Economics
- MATH 142 Calculus II
- MATH 143 Calculus III
- MATH 206 Linear Algebra I
- MATH 241 Calculus IV
- MATH 242 Differential Equations I
- MATH 244 Linear Analysis I
- MATH 248 Methods of Proof in Mathematics
- MATH 304 Vector Analysis
- MATH 306 Linear Algebra II
- MATH 406 Linear Algebra III
- MATH 412 Introduction to Analysis I
- MATH 413 Introduction to Analysis II
- MATH 414 Introduction to Analysis III
- MATH 416 Differential Equations II
- MATH 418 Partial Differential Equations
- MATH 437 Game Theory
- MATH 451 Numerical Analysis I
- MATH 452 Numerical Analysis II
- MATH 453 Numerical Optimization

Total units: 28

1 Consultation with an advisor is recommended prior to choosing approved electives. Courses in Analytics or in Statistics and Decision Analysis provide a focus in analytics. Courses in Statistics and Decision Analysis or in Mathematical Foundations are recommended for students pursuing post-baccalaureate studies.
2 Economics majors cannot count ECON 339 toward electives in the Quantitative concentration.
3 Economics majors cannot count ECON 395 or BUS 392 or CSC 101 toward electives in the Quantitative concentration.