

ECONOMIC ANALYTICS, CERTIFICATE

When analyzing data, economists use many of the same statistical tools as other disciplines. However, economists have a tradition of formally combining data analysis with economic models, giving a different perspective on data and how to think about data analysis. This certificate will introduce students not majoring in Economics to this economic approach to data analytics.

An economist's approach to data analysis has two distinguishing features. First, economists traditionally interpret observational data through the lens of an economic model. This often leads to an explicit derivation of the data-generating process, typically involving individual optimization. Second, economists tend to focus on identification and causal inference more than many other disciplines. This involves looking for combinations of data and empirical approaches that allow empirical relationships to be interpreted causally.

This certificate will introduce students to this perspective and these tools by teaching students a mix of microeconomic theory, statistics and econometrics, and hands-on experience analyzing real data.

HOW TO GET IN

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There are no prerequisites to declaring the certificate; students are encouraged to declare as soon as they are comfortable. Declaration of the certificate occurs via an online form, but students are encouraged to schedule a meeting with an Economics advisor.

Economics majors are not eligible to declare this certificate.

REQUIREMENTS

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The certificate requires at least 14 credits, from:

Code	Title	Credits
Complete one option from each category:		
<i>Microeconomics (complete one course):</i>		3-4
ECON 301	Intermediate Microeconomic Theory	
ECON 311	Intermediate Microeconomic Theory - Advanced Treatment	
<i>Statistics (complete one option):</i>		4-8
ECON 310	Statistics: Measurement in Economics	
STAT 240 & STAT 340	Data Science Modeling I and Data Science Modeling II	
STAT 303 & STAT 333	R for Statistics I and Applied Regression Analysis	
<i>Econometrics (complete one course)</i>		4
ECON 400	Introduction to Applied Econometrics	
ECON 410	Introductory Econometrics	

<i>Data-Related Economics Elective (complete one course):</i>		3-4
ECON 460	Economic Forecasting	
ECON 570	Fundamentals of Data Analytics for Economists	
ECON 695	Topics in Economic Data Analysis	

Total Credits 14

RESIDENCE AND QUALITY OF WORK

- Minimum 2.000 GPA on all certificate courses
- At least 7 credits must be taken in residence at UW-Madison

CERTIFICATION COMPLETION REQUIREMENT

This undergraduate certificate must be completed concurrently with the student's undergraduate degree. Students cannot delay degree completion to complete the certificate.

LEARNING OUTCOMES

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1. apply microeconomic models to understand and interpret individual behavior and market outcomes as the result of individual optimization
2. estimate the value of unknown parameters and test theories using formal hypothesis tests
3. summarize the conditions required for a statistical association to represent a causal relationship; evaluate the extent to which those conditions hold in particular settings; interpret the results when those conditions don't hold
4. download, clean, and analyze large economic datasets using modern statistical software

ADVISING AND CAREERS

ADVISING AND CAREERS ACADEMIC ADVISING

If you are wondering how this certificate can fit into your academic plans or help with your career goals, be sure to meet with an advisor. Our academic advisors (<https://econ.wisc.edu/undergraduate/find-academic-advising/>) can help you create an academic plan and ensure you are making the most of your academic experience.

SUCCESSWORKS

SuccessWorks (<https://successworks.wisc.edu/>) at the College of Letters & Science helps you turn the academic skills learned in your classes into a fulfilling life, guiding you every step of the way to securing jobs, internships, or admission to graduate school.

Through one-on-one career advising, events, and resources, you can explore career options, build valuable internship and research experience, and connect with supportive alumni and employers who open doors of opportunity.

- What you can do with your major (<https://successworks.wisc.edu/what-you-can-do-with-your-major/>) (Major Skills & Outcomes Sheets)
- Make a career advising appointment (<https://successworks.wisc.edu/make-an-appointment/>)
- Learn about internships and internship funding (<https://successworks.wisc.edu/finding-a-job-or-internship/>)
- Try “Jobs, Internships, & How to Get Them,” (<https://successworks.wisc.edu/canvas/>) an interactive guide in Canvas for enrolled UW-Madison students