

# ECONOMIC ANALYTICS, CERTIFICATE

The Department of Economics is happy to announce its Certificate in Economic Analytics. 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 non-Economics majors 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
<b>Complete one option from each category:</b>		
<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	
<b>Total Credits</b>		<b>14</b>

## 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. Find us on the campus map ([https://www.map.wisc.edu/?initObj=bdg\\_SocSc&z=41.33&x=-0.158401&y=-0.09157](https://www.map.wisc.edu/?initObj=bdg_SocSc&z=41.33&x=-0.158401&y=-0.09157)).

Email: [econadvise@ssc.wisc.edu](mailto:econadvise@ssc.wisc.edu)  
Phone: 608-262-6925

## ECONOMICS CAREER DEVELOPMENT OFFICE

The Economics Career Development Office (<https://econ.wisc.edu/careers/>) (ECDO) provides career advising to help economics students

explore career options and search for jobs and internships including reviewing application materials (cover letter and resume). Career advisors work with students to develop an individualized job/internship strategy based on the student's background and career goals. Career advising is open to declared economics majors, anyone considering majoring in economics, or students pursuing the Economic Analytics certificate who would like economics-specific career advice. Set up an appointment (<https://econ.wisc.edu/careers/get-career-advice/>) or email your questions to [econcareers@ssc.wisc.edu](mailto:econcareers@ssc.wisc.edu).

## L&S CAREER RESOURCES

Every L&S major opens a world of possibilities. SuccessWorks (<https://successworks.wisc.edu/>) at the College of Letters & Science helps students turn the academic skills learned in their major, certificates, and other coursework into fulfilling lives after graduation, whether that means jobs, public service, graduate school or other career pursuits.

In addition to providing basic support like resume reviews and interview practice, SuccessWorks offers ways to explore interests and build career skills from their very first semester/term at UW all the way through graduation and beyond.

Students can explore careers in one-on-one advising, try out different career paths, complete internships, prepare for the job search and/or graduate school applications, and connect with supportive alumni and even employers in the fields that inspire them.

- SuccessWorks (<https://careers.ls.wisc.edu/>)
- Set up a career advising appointment (<https://successworks.wisc.edu/make-an-appointment/>)
- Enroll in a Career Course (<https://successworks.wisc.edu/career-courses/>) – a great idea for first- and second-year students:
  - INTER-LS 210 L&S Career Development: Taking Initiative (1 credit)
  - INTER-LS 215 Communicating About Careers (3 credits, fulfills Comm B General Education Requirement)
- Learn about internships and internship funding (<https://successworks.wisc.edu/finding-a-job-or-internship/>)
  - INTER-LS 260 Internship in the Liberal Arts and Sciences
- Activate your Handshake account (<https://successworks.wisc.edu/handshake/>) to apply for jobs and internships from 200,000+ employers recruiting UW-Madison students
- Learn about the impact SuccessWorks has on students' lives (<https://successworks.wisc.edu/about/mission/>)

- Camboni, Matteo, Assistant Professor  
Microeconomic Theory, Economics of Organizations
- Chiang, Harold, Assistant Professor  
Econometrics
- Corbae, Dean, Professor  
Macroeconomics
- Coulibaly, Louphou, Assistant Professor  
International Finance and Macroeconomics, Monetary Economics
- Cox, Lydia, Assistant Professor  
International Trade and Macroeconomics
- Deneckere, Raymond, Professor  
Microeconomic Theory, Industrial Organization
- Engel, Charles, Professor  
International Economics, Macroeconomics
- Fu, Chao, Professor  
Labor Economics
- Gregory, Jesse, Associate Professor  
Labor Economics, Public Economics
- Agustin Gutierrez, Postdoctoral Fellow  
International trade, Macroeconomics, Labor Economics
- Hansen, Bruce, Professor  
Econometrics
- Hendricks, Kennan, Professor  
Industrial Organization
- Houde, Jean-Francois, Professor  
Industrial Organization
- Kang, Karam, Associate Professor  
Political Economy, Industrial Organization, Environmental Economics
- Kennan, John, Professor  
Labor Economics
- Kirpalani, Rishabh, Assistant Professor  
Macroeconomics, Public Finance, International Economics, Financial Economics
- Lentz, Rasmus, Professor  
Labor Economics, Macroeconomics, Microeconomics
- Magnolfi, Lorenzo, Assistant Professor  
Industrial Organization, Applied Microeconomics, Applied Econometrics
- Martellini, Paolo, Assistant Professor  
Macroeconomics, Labor Economics, Urban Economics
- Mommaerts, Corina, Assistant Professor  
Public Economics, Labor Economics
- O'Connell, Martin, Assistant Professor  
Public Economics, Industrial Organization
- Porter, Jack, Professor  
Econometrics
- Quint, Daniel, Associate Professor  
Microeconomic Theory, Industrial Organization
- Rojas-Ampuero, Fernanda, Assistant Professor  
Labor Economics
- Rostek, Marzena, Professor  
Microeconomic Theory, Market Design, Finance
- Ruhl, Kim, Professor  
International Economics
- Seshadri, Ananth, Professor  
Macroeconomics, Public Finance
- Shi, Xiaoxia, Professor

## PEOPLE

## PEOPLE FACULTY

- Aizawa, Naoki, Associate Professor  
Labor Economics, Health Economics, Public Economics
- Barwick, Panle, Professor  
Industrial Organization, Applied Microeconomics, Environmental Econometrics
- Bernard, Benjamin, Assistant Professor  
Game Theory, Microeconomic Theory, Financial Economics
- Boerma, Job, Assistant Professor  
Macroeconomics, Public Finance
- Braxton, Carter, Assistant Professor  
Macroeconomics, Labor Economics, Consumer Finance

## Econometrics

- Smith, Jeffrey, Professor  
Labor Economics, Public Economics
- Smith, Lones, Professor  
Microeconomic Theory
- Sorensen, Alan, Professor  
Industrial Organization
- Sullivan, Christopher, Assistant Professor  
Industrial Organization, Applied Microeconomics
- Swanson, Ashley, Associate Professor  
Industrial Organization, Health Economics, Education Economics
- Taber, Christopher, Professor  
Labor Economics, Applied Econometrics, Public Economics
- Weretka, Marek, Associate Professor  
Economic Theory, Finance
- West, Kenneth, Professor  
Macroeconomics, Econometrics
- Williams, Noah, Professor  
Macroeconomics
- Wiswall, Matthew, Professor  
Applied Microeconomics, Applied Econometrics, Labor Economics,  
Education and Demographic Economics
- Wright, Randall, Professor  
Macroeconomics, Finance
- Yata, Kohei, Assistant Professor  
Econometric Theory, Applied Econometrics

- Johnson, David, Senior Lecturer
- McKelvey, Christopher, Lecturer  
Development Economics
- Pac, Gregory, Senior Lecturer
- Rick, Steven, Senior Lecturer
- Trost, Steve, Lecturer

For a public directory of our faculty, please visit the Faculty page (<https://econ.wisc.edu/faculty/>) on our website.

## AFFILIATED FACULTY

- Chang, Briana  
Financial Intermediation, Information Frictions, Search and Matching Theory
- Chinn, Menzie
- Chung, Kevin  
Quantitative Marketing
- Montgomery, James  
Economic Sociology, Religion, General Social Theory, Demography and Ecology, Social Psychology and Microsociology
- Sarada  
Economics of Entrepreneurship and Innovation
- Schechter, Laura  
Development Economics, Behavioral and Experimental Economics, Risk Analysis
- Smeeding, Timothy  
Poverty, Intergenerational Mobility, Inequality, Wealth

## INSTRUCTIONAL STAFF

- Alder, Simeon, Faculty Associate  
Macroeconomics, Growth and Development, Matching
- Chan, Stella, Lecturer
- Eudey, Gwen, Senior Lecturer  
Open Economy Macroeconomics
- Friedman, Matthew, Lecturer
- Glawtschew, Rebecca, Lecturer
- Hansen, David, Lecturer  
Development Economics and Labor Economics
- Hansen, Korinna, Senior Lecturer  
Applied Microeconomics, Health Economics