

Mathematical Economics

A Mathematical Economics major combines advanced mathematics with economic theory to analyze complex economic systems, develop predictive models, and solve quantitative business and policy problems. Students gain a strong foundation in calculus, statistics, econometrics, optimization, and economic modeling while learning to apply mathematical techniques to decision-making in business, finance, and public policy. Graduates are well-prepared for analytical careers and are especially competitive for graduate study in economics, finance, mathematics, and data science.

Typical Industry Sectors:

- ❖ Finance and Banking
- ❖ Economic Consulting
- ❖ Government and Public Policy
- ❖ Data Analytics and Technology
- ❖ Research and Higher Education

Entry-Level Job Title Examples:

- ❖ Economic Analyst
- ❖ Quantitative Analyst (Quant)
- ❖ Financial Analyst
- ❖ Data Analyst
- ❖ Research Analyst
- ❖ Risk Analyst
- ❖ Business Intelligence Analyst
- ❖ Operations Research Analyst
- ❖ Pricing Analyst
- ❖ Policy Analyst

Skills Needed (Hard):

- ❖ Mathematical Modeling and Optimization
- ❖ Econometrics and Statistical Analysis
- ❖ Programming (R, Python, MATLAB, or SAS)
- ❖ Data Analysis and Visualization
- ❖ Advanced Excel and Quantitative Forecasting

Skills Needed (Soft):

- ❖ Analytical Thinking
- ❖ Critical Thinking & Problem-Solving
- ❖ Attention to Detail
- ❖ Written and Verbal Communication
- ❖ Persistence and Intellectual Curiosity

Further Education/Training:

A bachelor's degree in Mathematical Economics provides excellent preparation for careers requiring strong quantitative and analytical skills. Students interested in advancing their careers may pursue certifications such as the Chartered Financial Analyst (CFA), Financial Risk Manager (FRM), or Certified Analytics Professional (CAP). Graduate degrees in Economics, Applied Economics, Finance, Statistics, Data Science, Operations Research, or Mathematics are common pathways for students seeking research, consulting, or leadership positions.

Student and National Organizations to Join:

- ❖ **National Association for Business Economics (NABE)** – Offers networking, conferences, professional development, and career resources for students interested in economics and business.
- ❖ **American Economic Association (AEA)** – The leading professional organization for economists, providing conferences, publications, scholarships, and career opportunities.
- ❖ **Mathematical Association of America (MAA)** – Supports students interested in mathematics through competitions, conferences, publications, and professional networking.
- ❖ **Omicron Delta Epsilon (ODE)** – International honor society recognizing academic excellence in economics.
- ❖ **WKU Economics Club** – Provides students with opportunities to connect with faculty, alumni, guest speakers, and employers while exploring careers in economics and quantitative fields.