

# Applied Economics

M.S. in Applied Economics and Predictive Analytics (M.S.A.E.) (<https://catalog.und.edu/graduateacademicinformation/departmentalcoursesprograms/economicsapplied/econ-ms/>)

Certificate in Applied Economics (<https://catalog.und.edu/graduateacademicinformation/departmentalcoursesprograms/economicsapplied/econ-cert/>)

## **ECON 503. Government and Business. 3 Credits.**

## **ECON 504. Microeconomic Theory & Applications. 3 Credits.**

Economic theory and methodology; theory of consumer behavior and demand; theory of production and distribution; equilibrium in commodity and factor markets; general equilibrium and welfare; behavior of economic agents in imperfect competition. Particular attention is given to efficiency and equity ramifications of perfectly competitive economic systems. Prerequisite: ECON 308. Prerequisite or Corequisite: ECON 416. F.

## **ECON 505. Macroeconomic Theory & Applications. 3 Credits.**

Advanced study of macroeconomic theoretical models with particular attention to the analysis of business cycles, income growth and evaluation of public policies concerned with inflation and unemployment. Prerequisite: ECON 416 or successful completion of short online course in mathematics. S.

## **ECON 506. Econometrics. 3 Credits.**

Econometric analysis of economic and financial data. Topics include simple linear regression, multiple linear regression, and nonlinear regression functions. Techniques for dealing with violations of the regression models assumptions, including multicollinearity, heteroskedasticity, measurement error, endogeneity, and autocorrelation. Additional topics include binary variables, instrumental variable regression, big data, and time-series models. Estimation and testing of economic models will be an important part of the course. Prerequisite: Admission to the MBA or MSAE program, and department consent required. F,S.

## **ECON 509. Macroeconomic Decision Making. 3 Credits.**

Examination and utilization of theory and empirical evidence on macroeconomics in the business decision-making process will be stressed. Particular emphasis will be placed on inflation, interest rate changes, business taxation, and exchange rate movements. Prerequisite: ECON 202 and MATH 146.

## **ECON 510. Time Series Methods & Applications. 3 Credits.**

This course is an introduction to the econometric analysis of time series data and it provides a comprehensive treatment of modern time series techniques with a focus on applications in finance and macroeconomics. This course covers ARIMA models, analysis of stationary and nonstationary series, unit root tests, vector autoregressions, Granger causality, cointegrating relationships, vector error correction models, forecasting, volatility models, and other topics. Prerequisite: ECON 506. S.

## **ECON 514. Advanced Managerial Economics. 3 Credits.**

Microeconomic analysis applied to business decision-making. Topics include: the nature and scope of the firm, strategic decisions concerning product line, pricing, entry or exit from specific markets and the internal organization of the firm. Case studies are utilized as a main method of analysis. Prerequisite: ECON 201, ISYS 217 and MATH 146, or consent of instructor.

## **ECON 524. Advanced International Economics. 3 Credits.**

This course provides a broad overview of international trade theory, policy, and/or international finance. The course focuses on empirical application based on these theories. Prerequisite: ECON 506. Prerequisite or Corequisite: ECON 416 and ECON 504. F.

## **ECON 534. Further Topics in Econometrics. 3 Credits.**

This is an applied course in econometrics, the purpose of which is to build on the tools learned in previous coursework, learn new tools, and discover how to apply these tools to the analysis of data from the real world. The course includes theory, though the focus is on applying the tools of modern econometrics to the study of cross sectional, time series, and panel data. Prerequisite: ECON 506. F.

## **ECON 545. Quantitative Methods for Impact Evaluation & Causal Inference. 3 Credits.**

This course aims to familiarize the student with the current literature on the economics and econometrics of policy and program evaluation. Prerequisite or Corequisite: ECON 506. S.

## **ECON 565. Demographic Methods for Economics. 3 Credits.**

We examine the three key demographic processes: mortality, fertility, and migration. The course emphasis will be on model development for each of the processes. Applications include economic policy issues such as pensions, medical insurance, and other current issues. Prerequisite: ECON 210. SS.

## **ECON 575. Advanced Special Topics. 1-3 Credits.**

Topics of course will change from semester to semester but will typically emphasize an important aspect of economic theory or a significant issue in economic policy. Repeatable to 6 credits with different topics. Repeatable to 6.00 credits.

## **ECON 580. Economic Development: Global, National, and Regional Issues. 3 Credits.**

The first part of this course focuses on growth theories, globalization and economic development and sustainable growth among less developed, developing, and more developed countries, as well as countries in transition to market economies. The second part of the course specifically examines economic development for advanced nations, incorporating rural, urban and regional economic analysis. Issues such as rural technology, employment, poverty, housing, transportation, location problems, industrialization, urbanization and sustainable growth in North Dakota and North Central Region are explored. Prerequisite: Department consent. F.

## **ECON 592. Research in Economics. 2-3 Credits.**

Research work and use of original documents; collecting of material and preparing of special topics and bibliographies; familiarizing the student with government publications and other material available for study of economic problems.

## **ECON 596. Applied Economics Research Seminar. 3 Credits.**

Seminar course intended to strengthen and further develop essential skills of research and formal presentation (written and oral) for both academic and professional audiences. Students will apply these skills to the development of their individual Independent Study or Thesis Project Proposal. Enrollment is restricted to MSAE degree students who plan to complete their Independent Study or Thesis in the following academic year. Prerequisite: ECON 504, ECON 505, and ECON 506. SS.

## **ECON 597. Economic Research Internship. 1-3 Credits.**

An internship is designed to provide the student with an opportunity for participating in a supervised work experience directly related to the field of training. Students will work closely with the program adviser in planning the internship with an approved cooperating institution. Prerequisite: Permission of program director. Repeatable to 3.00 credits. F,S,SS.

## **ECON 996. Continuing Enrollment. 1-12 Credits.**

Repeatable. S/U grading.

## **ECON 997. Independent Study. 3 Credits.**

The independent study is a capstone for MSAE students on the non-thesis track. The course requires the student to investigate a topic or research question in applied economics that is assigned by the instructor. The student will prepare a research paper demonstrating his/her ability to creatively apply the various methods and perspectives taught in the MSAE program in addressing the assigned problem. Students will also be required to develop a presentation for their paper. Prerequisite: ECON 504, ECON 505, and ECON 506. S.

## **ECON 998. Thesis. 4 Credits.**

The thesis is an original research project completed under the supervision of a thesis committee.

## Undergraduate Courses for Graduate Credit

### **ECON 324. Public Finance. 3 Credits.**

Growth and effects of the public sector of the economy emphasizing effects of taxation and spending or borrowing and debt management on efficiency and use of economic resources. Prerequisite: ECON 201 and ECON 202. S.

**ECON 338. International Economics. 3 Credits.**

The course introduces to the students the sources of international trade, traditional international trade model (the Ricardian, the Specific-factors, Heckscher-Ohlin model), movement of labor and capital between countries, new trade theories (increasing returns to scale, monopolistic competition, and offshoring) and trade policies such as tariffs, quotas and export subsidies. Prerequisite: ECON 201 and ECON 202. S.

**ECON 410. Empirical Methods in Economics I. 3 Credits.**

This course examines the statistical techniques for economic data analyses, estimation of causal effects, hypothesis tests, prediction of economic relationships/theories. Core topics include basic statistical methods and probability distributions, ordinary least squares, multiple regression, non-linear regression, introduction of time-series analysis and problems in their application such as multicollinearity, heteroskedasticity, and dummy variable, among others. As part of the course, students will manage data and estimate regression models using statistical software. Prerequisite: ECON 201, ECON 202 and ECON 210. F.

**ECON 411. Economic Forecasting. 3 Credits.**

An introduction to Economics Forecasting and Time Series Analysis. The course will cover specifications and estimation of ARMA models, seasonality, non-stationarity, unit roots and forecast evaluations. Empirical applications are used throughout the course. Prerequisite: ECON 410 or ECON 506. S.

**ECON 416. Mathematics for Economists. 3 Credits.**

Study of mathematical methods in the areas of introductory calculus and linear algebra, and their application to economic analysis. Mathematical analysis of static and dynamic equilibrium models, growth models, distribution, production functions, cycles, activity analysis, mathematical programming, and model building. Prerequisite: MATH 146 or MATH 165. Corequisite: ECON 308. F.

**ECON 438. International Money and Finance. 3 Credits.**

This course aims to help students understand international finance. The course introduces to the students the foreign exchange market, theory of exchange rate in the short run and in the long run, determinants of capital flows, current account balances, two regimes of exchange rates, exchange rate crises, and Euro. Prerequisite: ECON 309. F.