ECON 4730: R Programming for Economists

3 Credit Hours

Prerequisite: Business Majors: Admission to the Coles College of Business and ECON 3300; Non-Business Majors: 60 credit hours and (ECON 2300 or STAT 1401) and ECON 3300 and permission of department chair.

This course introduces R programming basics and related multivariate and econometric modeling methods for various business and economic data. Specific topics include basic features of R programming; data input and output; various graphic methods for data presentation; flow control and the use of functions; general principles for programming; simulation methods for econometric modeling; computational linear algebra; regression methods; numerical optimization; matrix algebra theory for multivariate data analysis; case studies in business and economics.

ECON 4750: Multivariate Data Analysis

3 Credit Hours

Prerequisite: ECON 2105, (ECON 2300 or STAT 1401) 60 credit hours with a minimum GPA of 2.0, and Admission to the Coles College Undergraduate Professional Program or student in a Coles College Partner Program that includes this course.

The theory and application of quantitative methods of data analysis. Emphasis is on the application of statistical principles to empirical model building in business and economics. Topics include regression analysis, analysis of variance, factor analysis, discriminant analysis, parametric and nonparametric tests, sampling techniques, and experimental design.

ECON 4760: Business Forecasting

3 Credit Hours

Prerequisite: 60 credit hours with a minimum GPA of 2.0, and [(ECON 4710 and Admission to the Coles College Undergraduate Professional Program) or ((ECON 4710 or STAT 3130) and student in a Coles College Partner Program that includes this course.)]

Econometric and time series methods for forecasting business and economic data are introduced. Specific topics include: basic graphic methods for analyzing data; modeling forecasting trend and seasonality; ARMA modeling of time series; unit root and ARIMA process; forecasting volatility; evaluation and comparison of forecasting models.