

## **CORE M.A. COURSES AND SPECIAL RESEARCH PROJECT**

### **Mathematics for Economics**

*G31.1001 3 Points*

Applications of mathematics to economics: functions, simultaneous equations, linear models and matrix algebra, determinants, inverse matrix, Cramer's rule, differentiation and optimization of functions of one or more variables, quadratic forms, characteristic roots and vectors, constrained optimization, and interpretation of the Lagrange multiplier. Techniques applied to examples from the theory of the firm and consumer behavior.

### **Microeconomic Theory**

*G31.1003 (prerequisite: G31.1001). 3 Points*

Applied microeconomics relating to the firm in various markets and household behavior.

### **Macroeconomic Theory I**

*G31.1005 3 Points*

Macroeconomic theory applied to aggregate supply and demand and their components, designing and implementing macroeconomic policy goals and forecasting GDP and its components.

### **Applied Statistics and Econometrics I**

*G31. 1101(prerequisite: undergraduate statistics course or permission of the instructor)  
3 Points*

Introduction to probability theory and statistics. Topics include discrete and continuous probability distributions, normal distribution, the use of t-statistics, hypothesis testing, confidence intervals, and analysis of variance. Familiarity with regression software package is mandatory.

### **Applied Statistics and Econometrics II**

*G31.1102 (Prerequisite: G31.1101 or permission of the instructor)  
3 Points*

Introduction to single-equation regression estimation; ordinary least-squares estimation, confidence intervals, and significance testing; lags, dummy variables; multicollinearity, autocorrelation; heteroscedasticity and variable selection. Students are required to use a standard computer regression package to test a model of their choosing.

### **Special Project in Economic Research**

*G31.3200 1-2 Points*

Students integrate economic theory, empirical techniques, and analytical tools to solve real-world problems. Students undertake (1) a comprehensive and critical literature survey of an applied topic in recent economic literature and (2) original analytical and/or empirical work on that topic.