Mathematical Economics And Econometrics

A textbook for a first-year PhD course in mathematics for economists and a reference for graduate students in economics.

This book is intended to provide a somewhat more comprehensive and unified treatment of large sample theory than has been available previously and to relate the fundamental tools of asymptotic theory directly to many of the estimators of interest to econometricians. In addition, because economic data are generated in a variety of different contexts (time series, cross sections, time series--cross sections), we pay particular attention to the similarities and differences in the techniques appropriate to each of these contexts.

This text contains the mathematical material necessary as background for the topics covered in advanced microeconomics courses. It focuses on two key components of microeconomics - optimization subject to constraints and the development of comparative statistics. Assuming familiarity with calculus of one variable and basic linear algebra, the text allows more extensive coverage of additional topics like constrained optimization, the chain rule, Taylor's theorem, line integrals and dynamic programming. It contains numerous examples that illustrate economics and mathematical situations, many with complex solutions.

The economic theory of general equilibrium underpins the most important models used in economic theory in general and in its more specialized areas such as macroeconomics, international trade, environmental economics, growth theory, and developmental economics. In Foundations of the Theory of General Equilibrium, leading academic scholar, Yves Balasko offers a good introduction to the economic theory of general equilibrium and makes use of various mathematical tools as intuitive and easy as possible. The second half of the book addresses properties of the general equilibrium model that are still at the frontier of current research. These properties deal with the characterization of economies with a unique equilibrium and, more generally, with the relationships between the number of equilibria and the fundamentals of an economy. Contents:The Exchange ModelA Simple Linear Version of the Exchange ModelThe Exchange Model with Two Goods and Two ConsumersConsumer TheoryThe Equilibrium ManifoldThe Natural ProjectionEquilibrium Analysis for Fixed Total ResourcesThe Natural Projection and Envelope TheoryA Duality TheorySeveral Extensions of the General Equilibrium Model Readership: Graduate students in mathematics who want to specialize in economics and mathematical economics; researchers and professionals who will find in this book a detailed account of some of the most current developments of a difficult but essential theory.

With the failure of economics to predict the recent economic crisis, the image of economics as a rigorous mathematical science has been subjected to increasing interrogation. One explanation for this failure is that the subject took a wrong turn in its historical trajectory, becoming too mathematical. Using the philosophy of mathematics, this unique book re-examines this trajectory. Philosophy of Mathematics and Economics re-analyses the divergent rationales for mathematical economics by some of its principal architects. Yet, it is not limited to simply enhancing our understanding of how economics became an applied mathematical science. The authors also critically evaluate developments in the philosophy of mathematics to expose the inadequacy of aspects of mainstream mathematical economics, as well as exploiting the same philosophy to suggest alternative ways of rigorously formulating economic theory for our digital age. This book represents an innovative attempt to more fully understand the complexity of the interaction between developments in the philosophy of mathematics and the process of formalisation in economics. Assuming no expert knowledge in the philosophy of mathematics, this work is relevant to historians of economic thought and professional philosophers of economics. In addition, it will be of great interest to those who wish to deepen their appreciation of the economic contours of contemporary society. It is also hoped that mathematical

economists will find this work informative and engaging.

This volume contains ten essays on seminal topics in economic theory by internationally renowned scholars.

An Introduction to Mathematical Analysis for Economic Theory and EconometricsPrinceton University Press

Graduate-level text provides complete and rigorous expositions of economic models analyzed primarily from the point of view of their mathematical properties, followed by relevant mathematical reviews. Part I covers optimizing theory; Parts II and III survey static and dynamic economic models; and Part IV contains the mathematical reviews, which range fromn linear algebra to point-to-set mappings.

Elements of Numerical Mathematical Economics with Excel: Static and Dynamic Optimization shows readers how to apply static and dynamic optimization theory in an easy and practical manner, without requiring the mastery of specific programming languages that are often difficult and expensive to learn. Featuring user-friendly numerical discrete calculations developed within the Excel worksheets, the book includes key examples and economic applications solved step-by-step and then replicated in Excel. After introducing the fundamental tools of mathematical economics, the book explores the classical static optimization theory of linear and nonlinear programming, applying the core concepts of microeconomics and some portfolio theory. This provides a background for the more challenging worksheet applications of the dynamic optimization theory. The book also covers special complementary topics such as inventory modelling, data analysis for business and

economics, and the essential elements of Monte Carlo analysis. Practical and accessible, Elements of Numerical Mathematical Economics with Excel: Static and Dynamic Optimization increases the computing power of economists worldwide. This book is accompanied by a companion website that includes Excel examples presented in the book, exercises, and other supplementary materials that will further assist in understanding this useful framework. Explains how Excel provides a practical numerical approach to optimization theory and analytics Increases access to the economic applications of this universally-available, relatively simple software program Encourages readers to go to the core of theoretical continuous calculations and learn more about optimization processes

Foundations of Supply-Side Economics: Theory and Evidence is composed of a series of papers containing both theoretical and empirical analyses of a set of issues in government fiscal policy. The type of analysis employed in the book is standard neoclassical economics, and this analysis is used to study the macroeconomic incentive effects of taxation. The book contains contributions that cover the analysis of the effects of taxes imposed purely for generating revenues; the process of capital formation; and an attempt to integrate supply-side analysis into a traditional macroeconomic framework. Reports on the empirical evidence on taxation and economic activity and the estimation of a small macroeconomic model of the United States for the postwar period; description of a method of calculating effective marginal tax rates on factor incomes using available U.S. data; and the estimation of the effect of fiscal policy on private investment in plant and equipment are presented as well. Economists will find the book highly insightful.

This systematic exposition and survey of mathematical economics emphasizes the unifying

structures of economic theory.

This book contains the Proceedings of a symposium that was held in Rotterdam from 12 to 15 January 1982 to celebrate the 25-th anniversary of the Econometric Institute of the Erasmus University. The subject of the symposium, developments in econometrics and related fields, was particularly appropriate for the occasion. In 25 years the research carried out at the Econometric Institute developed from the original seminal work in econometrics, carried out under the supervision of the first director H. Theil, to embrace related areas such as mathematical economics, operations research, systems theory and other branches of mathematics, statistics and probability theory. To review the state of the art in these areas, thirteen leading experts were invited to deliver a lecture at the symposium; their contributions form .the backbone of this book. Together, they illustrate the wide range and scope of the current scientific activity in these fields. The thirteen authoritative surveys should be of great value to researchers and students alike, who want to become acquainted with recent ideas, current trends and future developments in their chosen fields of interest. Each contribution is preceded by an introduction to the author and his work and followed by a summary of the discussion that followed the lecture. A special chapter is devoted to the history of the Econometric Institute.

The literature on international economics has become excessively specialized. In selecting distinguished readings for this source book--including contributions by Nobel laureates such as Lawrence R. Klein, Arthur Lewis, James Meade, and Theodore W. Schultz--Professor Letiche breaks the mold. The essays concentrate on interrelation

between theory and actual policy design, and this collection of classic pieces and recent economic contributions are a valued resource in universities and government offices.

Statistical Foundations for Econometric Techniques features previously unavailable material in a textbook format for econometrics students, researchers, and practitioners. Taking strong positions for and against standard econometric techniques, the book endorses a single best technique whenever possible. In many cases, the recommended optimal technique differs substantially from current practice. Detailed discussions present many new estimation strategies superior to conventional OLS and ways to use them. Key Features * Evaluates econometric techniques and the procedures commonly used to analyze those techniques * Challenges established concepts * Introduces many techniques that are not available in other texts * Recommends against using the Durbin-Watson and Lagrange Multiplier tests in favor of tests with superior power * Provides many new types of estimation strategies superior to conventional OLS * Forms a judicious mixture of various methodological approaches * Illustrates Empirical Bayes estimators and Robust Regression techniques possessing a 50% breakdown value

In highly mathematical courses, it is a truism that students learn by doing, not by reading. Tamara Todorova's Problems Book to Accompany Mathematics for Economists provides a life-line for students seeking an extra leg up in challenging courses. Beginning with college-level mathematics, this comprehensive workbook

presents an extensive number of economics–focused problem sets, with clear and detailed solutions for each one. By keeping the focus on economic applications, Todorova provides economics students with the mathematical tools they need for academic success.

A stand-alone textbook in matrix algebra for econometricians and statisticians - advanced undergraduates, postgraduates and teachers.

Focuses on two key components of microeconomics - optimization subject to constraints and the development of comparative statics. The book assumes familiarity with calculus of one variable and basic linear algebra, allowing coverage of additional topics like the chain rule and Taylor's theorem.

A concise, accessible introduction to maths for economics with lots of practical applications to help students learn in context.

An Introductory Econometrics Text Mathematical Statistics for Applied Econometrics covers the basics of statistical inference in support of a subsequent course on classical econometrics. The book shows students how mathematical statistics concepts form the basis of econometric formulations. It also helps them think about statistics as more than a toolbox of techniques. Uses Computer Systems to Simplify Computation The text explores the unifying themes involved in quantifying sample information to make inferences. After developing the necessary probability theory, it presents the concepts of estimation, such as convergence, point estimators, confidence intervals, and hypothesis tests. The text then shifts from a general development of mathematical statistics to focus on applications particularly popular in

economics. It delves into matrix analysis, linear models, and nonlinear econometric techniques. Students Understand the Reasons for the Results Avoiding a cookbook approach to econometrics, this textbook develops students' theoretical understanding of statistical tools and econometric applications. It provides them with the foundation for further econometric studies.

This book is intended for use in a rigorous introductory PhD level course in econometrics. Looking at the process through which we arrive at adequate explanations for economic events, the author organizes the topics beginning with real numbers and functions, emphasizes the idea of linearity and encourages the reader to develop geometric intuition for the mathematical results.

The ideal review for your intro to mathematical economics course More than 40 million students have trusted Schaum's Outlines for their expert knowledge and helpful solved problems. Written by renowned experts in their respective fields, Schaum's Outlines cover everything from math to science, nursing to language. The main feature for all these books is the solved problems. Step-by-step, authors walk readers through coming up with solutions to exercises in their topic of choice. Outline format supplies a concise guide to the standard college courses in mathematical economics 710 solved problems Clear, concise explanations of all mathematical economics concepts Supplements the major bestselling textbooks in economics courses Appropriate for the following courses: Introduction to Economics, Economics, Econometrics, Microeconomics, Macroeconomics, Economics Theories, Mathematical Economics, Math for Economists, Math for Social Sciences Easily understood review of mathematical economics Supports all the major textbooks for mathematical

economics courses

Providing an introduction to mathematical analysis as it applies to economic theory and econometrics, this book bridges the gap that has separated the teaching of basic mathematics for economics and the increasingly advanced mathematics demanded in economics research today. Dean Corbae, Maxwell B. Stinchcombe, and Juraj Zeman equip students with the knowledge of real and functional analysis and measure theory they need to read and do research in economic and econometric theory. Unlike other mathematics textbooks for economics, An Introduction to Mathematical Analysis for Economic Theory and Econometrics takes a unified approach to understanding basic and advanced spaces through the application of the Metric Completion Theorem. This is the concept by which, for example, the real numbers complete the rational numbers and measure spaces complete fields of measurable sets. Another of the book's unique features is its concentration on the mathematical foundations of econometrics. To illustrate difficult concepts, the authors use simple examples drawn from economic theory and econometrics. Accessible and rigorous, the book is self-contained, providing proofs of theorems and assuming only an undergraduate background in calculus and linear algebra. Begins with mathematical analysis and economic examples accessible to advanced undergraduates in order to build intuition for more complex analysis used by graduate students and researchers Takes a unified approach to understanding basic and advanced spaces of numbers through application of the Metric Completion Theorem Focuses on examples from econometrics to explain topics in measure theory

This booklet was begun as an appendix to Introductory Econometrics. As it progressed, requirements of consistency and completeness of coverage seemed to make it inordinately

long to serve merely as an appendix, and thus it appears as a work in its own right. Its purpose is not to give rigorous instruction in mathematics. Rather it aims at filling the gaps in the typical student's mathematical training, to the extent relevant for the study of econometrics. Thus, it contains a collection of mathematical results employed at various stages of Introductory Econometrics. More generally, however, it would be a useful adjunct and reference to students of econometrics, no matter what text is being employed. In the vast majority of cases, proofs are provided and there is a modicum of verbal discussion of certain mathematical results, the objective being to reinforce the reader's understanding of the formalities. In certain instances, however, when proofs are too cumbersome, or complex, or when they are too obvious, they are omitted.

Twenty papers written by the influential economic theorist Professor Gerard Debreu.

Financial Economics and Econometrics provides an overview of the core topics in theoretical and empirical finance, with an emphasis on applications and interpreting results. Structured in five parts, the book covers financial data and univariate models; asset returns; interest rates, yields and spreads; volatility and correlation; and corporate finance and policy. Each chapter begins with a theory in financial economics, followed by econometric methodologies which have been used to explore the theory. Next, the chapter presents empirical evidence and discusses seminal papers on the topic. Boxes offer insights on how an idea can

be applied to other disciplines such as management, marketing and medicine, showing the relevance of the material beyond finance. Readers are supported with plenty of worked examples and intuitive explanations throughout the book, while key takeaways, ‘test your knowledge’ and ‘test your intuition’ features at the end of each chapter also aid student learning. Digital supplements including PowerPoint slides, computer codes supplements, an Instructor’s Manual and Solutions Manual are available for instructors. This textbook is suitable for upper-level undergraduate and graduate courses on financial economics, financial econometrics, empirical finance and related quantitative areas.