

Economics 113: Introduction to Mathematical Economics  
Prof. R. Starr, Winter Quarter 2010

Economics 113, Mathematical Economics, will be offered this Winter quarter 2010, TuTh 2:00 – 3:20, in room 121 Pepper Canyon Hall.

Economics 113 introduces one of the major achievements of modern economic theory, the now-classic Arrow-Debreu general equilibrium model (the basis of two Nobel Prizes in Economics). The presentation is in a form accessible to advanced undergraduates in economics and mathematics. Topics covered include mathematical preliminaries, the household and firm, existence of general economic equilibrium, Pareto efficiency of general economic equilibrium, the First and Second Fundamental Theorems of Welfare Economics, futures markets over time, contingent commodity markets under uncertainty, the Arrow Possibility Theorem. The mathematical prerequisites are high school algebra and a year of calculus. The mathematics to be developed in class includes real analysis, the Brouwer Fixed-Point Theorem, and separating and supporting hyperplane theorems. The treatment emphasizes clarity and accessibility to the student through use of examples and intuition.

The text (*General Equilibrium Theory: An Introduction*) was specifically written for Economics 113 by Prof. Starr, facilitating study and comprehension of the course material. The course covers chapters 1 - 7, 12, and 15 of the text. There will be weekly problem sets, two midterms and a final exam.

Prerequisites: A year of calculus and a year of upper division microeconomic theory (at UCSD these courses are Math 20 A-B-C, and Economics 100A-B or 170A-B, 100C is recommended); alternative prerequisites (instead of a year of economics) are UCSD Math 140A or 142A. The prerequisites may be taken concurrently.

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