Economics/Mathematics C103: Mathematical Economics -- The Theory of Markets

Description: This course is an introduction to the theory of economic markets, and the design of market mechanisms. Minimum prerequisites are Math 53-54. Ideal preparation includes Econ 101A, Math 104, and Stat. 101.

Text: Geoffrey Jehle & Philip Reny, <u>Advanced Microeconomic Theory</u>, Addison-Wesley, 2nd Edition, 2001.

All readings other than the text are posted on the course website. Weekly problem sets will also be posted on the website.

TOPIC OUTLINE

1. Analysis and Linear Algebra (Aug. 26, 28, Sept. 2)

    Jehle-Reny, Chap. A1.
    D. McFadden, "Analysis and Linear Algebra in a Nutshell", <u>Statistical Tools</u>, Chap. 2.
    D. McFadden, "Definite Quadratic Forms Subject to Constraints," in M. Fuss and D. McFadden, <u>Production Economics</u>,
        Appendix A.1.

NO CLASS Sept. 4 and Sept. 9. Makeup classes will be scheduled as discussion sections before the midterm and final.

2. Convexity and Constrained Optimization (Sept. 11, 16)

    Jehle-Reny, Chap. A2
    D. McFadden, "Necessary and Sufficient Conditions for the Classical Programming Problem," in M. Fuss and D.
        McFadden, <u>Production Economics</u>, Appendix A.2.
    D. McFadden, "Optimization Theory in a Nutshell."

3. Theory of Consumption and Production (Sept. 18, 23, 25, 30)

    D. McFadden, "Robinson Crusoe Meets Walras and Keynes."
    Jehle-Reny, Chap. 1, 3

4. Theory of Markets (Oct. 2, 7, 9, 14, 16, 21)

    Jehle-Reny, Chap. 4, 5

MIDTERM, Oct. 23

5. Economic Games (Oct. 28, 30, Nov. 4, 6, 11)

    Jehle-Reny, Chap. 7

6. Auctions and Mechanism Design (Nov. 13, 18, 20, 25, Dec. 2, 4)

    Jehle-Reny, Chap. 9
    P. Milgrom,, <u>Putting Auction Theory to Work</u>, Section 1, Chap. 2, 3 (if available)