The main text for this course is:


Although no assignments are taken from it, those students who would like an elementary, mostly geometric summary of the main ideas of the course in the context of a four-good model containing one consumption good, one new capital good (current saving), one old capital good (accumulated past saving), and labor, might consider the following book on reserve:


Other reading assignments are made from the following books also on reserve:

Hicks, J.R., *Value and Capital*, 2nd ed.
Debreu, G., *Theory of Value*.
Katzner, D.W., *Static Demand Theory* (abbreviated *SDT* below).

The last two of the above references are especially demanding mathematically.

Problems are assigned on a weekly basis as indicated on pp. 4, 5 below. Except for the last assignment, solutions are due in class on the class-day after the week for which problems are assigned. Student solutions will be graded by a teaching assistant, and will be discussed in a discussion section led by that person at a time and place to be determined. Each problem is worth one point; there are 71 problems (points) in all. The teaching assistant will also hold office hours to be announced subsequently.

There is one midterm exam (worth 100 points) and one final exam (worth 200 points) as indicated on the following schedule. Course grades will be based on the combined points scored on the problems and the two exams.
The course will cover the following topics and assignments in the order indicated:

Week 1: Introduction.

Henderson and Quandt: Ch. 1.
Intriligator: Ch. 1.
Marshall: Book I.
Samuelson: Chs. 1 - 3.
Silberberg: Ch. 1.

Week 2: Preferences and Utility.

Katzner, *Intro*: Sects. 2.1, 2.2.
Hicks: Ch 1.
Intriligator: Sects. 7.1, 7.2.
Marshall: Book III, Chs. 1, 2.
Debreu: pp. 50 - 61.
Katzner, *SDT*: Sects. 2.1, 2.2.

Week 3: Utility Maximization.

Katzner, *Intro*: Sect. 2.3.
Henderson and Quandt: Intro, to Ch. 2, Sects. 2-1, 2-2.
Hicks: Ch. 2.
Intriligator: Sect. 7.3.
Samuelson: pp. 90 - 100.
Katzner, *SDT*: Sect. 3.1.

Week 4: Properties of Demand Functions.

Katzner, *Intro*: Sect. 2.4.
Henderson and Quandt: Sects. 2-3, 2-5, 2-6.
Hicks: Ch. 3.
Intriligator: Sect. 7.4.
Samuelson: pp. 107 - 117.
Silberberg: Sects. 8.3, 8.4.
Katzner, *SDT*: Sects. 3.2 - 3.4.

Week 5: Topics in Demand Theory.

Katzner, *Intro*: Ch. 3.
Henderson and Quandt: Sects. 3-1 - 3-7.
Intriligator: Sect. 7.5.
Marshall: Book III, Ch. 6; Book IV, Ch. 1.
Samuelson: pp. 107 - 117.
Silberberg: pp. 229 - 233, Sects. 11.1, 11.2.

Week 6: Review. Midterm Exam.
Week 7: Production Functions.
  
  Katzner, *Intro*: Sects. 4.1, 4.2.
  Henderson and Quandt: pp. 64 - 73, 105 - 107.
  Intriligator: Sect. 8.1.
  Debreu: pp. 37 - 42.

Week 8: Production Functions (continued).
  
  Katzner, *Intro*: Sects. 4.2, 4.3.
  Henderson and Quandt: pp. 73, 111 - 114.
  Intriligator: Sect. 8.1.
  Silberberg: Sects. 10.1, 10.4.

Week 9: Cost Functions.
  
  Katzner, *Intro*: Sects. 4.4, 4.5.
  Samuelson: pp. 57 - 76.
  Silberberg: Ch. 7, pp. 275 - 278, Sects. 10.2, 10.3.

Week 10: The Firm in the Short Run.
  
  Katzner, *Intro*: Sect. 5.1.
  Intriligator: Sects. 8.2, 8.3.
  Samuelson: pp. 76 - 89.

  
  Katzner, *Intro*: Sect. 5.2, 6.1, 6.2.
  Marshall: Book V, Chs. 1 - 3, 5, 6, 8 - 10, 12, 13, 15.
  Debreu: pp. 43 - 49.

Week 12: Taxation, Exchange.
  

  
  Katzner, *Intro*: Sects. 7.2, 7.3.
  Henderson and Quandt: Intro, to Ch. 9, Sects. 9-1, 9-3, 9-4.

Final Exam.
In the list of assigned problems below, each number refers to a specific problem in the source indicated. “H & Q” is an abbreviation for the Henderson and Quandt text cited above. “Var” refers to H. R. Varian, *Microeconomic Analysis*, 2nd ed. This last book has not been placed on reserve.

Week 1: (Due 1/27) *Intro*: 1.1 - 1.5.

Week 2: (Due 2/3) *Intro*: 2.1 - 2.4, 2.7.

Week 3: (Due 2/10) *Intro*: 2.10, 2.11, 2.13 - 2.15. In addition:

a. (H & Q: 2-3) Find the optimum commodity purchases for a consumer whose utility function and budget constraint are

\[ u(x_1,x_2) = (x_1)^{3/2} x_2 \quad \text{and} \quad 3x_1 + 4x_2 = 100, \]

respectively.

b. (Var: 3.8) Derive the demand functions from the utility function

\[ u(x_1,x_2) = -1/x_1 - 1/x_2. \]

Week 4: (Due 2/17) *Intro*: 2.17 - 2.20, 2.22, 2.23.

Week 5: (Due 2/24) *Intro*: 3.2, 3.3, 3.9, 3.11, 3.12, 3.15. In addition:

a. (Var: 3.19) Derive the demand functions from the indirect utility function

\[ v(p_1,p_2,m) = -(1/\delta)\{\ln[(p_1)^\delta + (p_2)^\delta]\} + \ln m, \]

where \( \delta > 0 \).

Week 7: (Due 3/9) *Intro*: 4.1, 4.2, 4.14. In addition:

a. (H & Q: 4-1) Construct average and marginal product functions for input 1 from the production function

\[ f(y_1,y_2) = y_1y_2 - .2(y_1)^2 - .8(y_2)^2. \]

For \( y_2 = 10 \), at what respective values of \( y_1 \) will the average and marginal products of input 1 be zero?

b. (H & Q: 4-2) Determine the domain over which the production function

\[ f(y_1,y_2) = 100(y_1 + y_2) + 20y_1y_2 - 12.5[(y_1)^2 + (y_2)^2] \]

is increasing and strictly concave.
Week 8: (Due 3/23) Intro: 4.3 - 4.7, 4.19, 4.23.

Week 9: (Due 3/30) Intro: 4.8 - 4.13.

Week 10: (Due 4/6) Intro: 5.3 - 5.5, 5.7 - 5.9. In addition:
   a. (H & Q: 4-4) Assume a short-run total cost function of
      \[ TC(x) = x^3 - 10x^2 + 17x + 66. \]
      Determine the profit-maximizing output when \( p = 5 \).

Week 11: (Due 4/13) Intro: 5.10 - 5.13, 5.16.

Week 12: (Due 4/25) Intro: 6.1 - 6.5.