## ECONOMICS 701

Course Syllabus and Outline

Lecture classes will normally meet as scheduled - Mondays and Wednesdays at 9:05 am in Crotty 209. If a face-to-face lecture class cannot be held for any reason (e.g., the University is closed because of snow), that class will meet remotely on Zoom at the regularly scheduled time. You will receive a link to the Zoom meeting at least one hour before the lecture class is to begin. All remote lectures will be recorded and made available to students on Moodle.

The main text for this course is:

Katzner, D.W., An Introduction to the Economic Theory of Market Behavior: Microeconomics from a Walrasian Perspective (Cheltenham: Elgar, 2006), Chs. 1-7. (This book is abbreviated to Intro below.)

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:

Katzner, D.W., The Walrasian Vision of the Microeconomy: An Elementary Exposition of the Structure of Modern General Equilibrium Theory (Ann Arbor: University of Michigan Press, 1989).

Other readings suggested in the schedule below are taken from the following books:

Henderson, J.M., and R.E. Quandt, Microeconomic Theory, 3rd ed.
Hicks, J.R., Value and Capital, 2nd ed.
Intriligator, M.D., Mathematical Optimization and Economic Theory.
Marshall, A., Principles of Economics, 8th ed.
Silberberg, E., The Structure of Economics, 1978 ed.
Samuelson, P.A., Foundations of Economic Analysis.
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. Another mathematically demanding and popular text for this course is:

Mas-Colell, A., M.D. Whinston, and J.R. Green, Microeconomic Theory.
However, no reference to it will be made in this course.

Problems are assigned on a weekly basis and solutions are due as indicated on pp. 4, 5 below. Student solutions will be graded by a teaching assistant, and will be discussed, along with general course material, in a discussion section (with attendance optional) 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. Students who do not turn in solutions to all of the problems will be given an incomplete for the course.

There will be one midterm exam (worth 100 points) and one final exam (worth 200 points) as indicated on the following schedule. Course grades (assuming all solutions to problems have been turned in) will be based on the combined points scored on the problems and the two exams.

The course will cover the following topics in the order indicated:

Week 1: Introduction.
Katzner, Intro: Ch. 1, and appendix Sects. A.1-A.4.
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.
Silberberg: pp. 214-229.
Debreu: pp. 62-73.
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.
Marshall: Book III, Chs. 3, 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.
Henderson and Quandt: pp. 74-78, 83-88, 117-119.
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.
Henderson and Quandt: pp. 78-81, 108-110.
Intriligator: Sects. 8.2, 8.3.
Samuelson: pp. 76-89.
Silberberg: pp. 263-272.

Week 11: The Firm in the Long Run, Market Equilibrium.
Katzner, Intro: Sect. 5.2, 6.1, 6.2.

Henderson and Quandt: pp. 81, 88-92, 110, 111, 135-149, 154-157.
Marshall: Book V, Chs. 1-3, 5, 6, 8-10, 12, 13, 15.
Silberberg: pp. 272-275, 278-284.
Debreu: pp. 43-49.

Week 12: Taxation, Exchange.
Katzner, Intro: Ch. 6.3, 7.1.
Henderson and Quandt: pp. 152-154, 237-240.

Week 13: Interacting Markets, Circulating Money.
Katzner, Intro: Sects. 7.2, 7.3.
Henderson and Quandt: Intro, to Ch. 9, Sects. 9-1, 9-3, 9-4.

Final Exam.

## Problem Assignments

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.

Week 1: (Due 2/13) Intro: 1.1-1.5.

Week 2: (Due 2/22) Intro: 2.1-2.4, 2.7.

Week 3: (Due 3/1) 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

$$
u\left(x_{1}, x_{2}\right)=\left(x_{1}\right)^{2 / 3}\left(x_{2}\right) \quad \text { and } \quad 3 x_{1}+4 x_{2}=100
$$

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

$$
u\left(x_{1}, x_{2}\right)=-\frac{1}{x_{1}}-\frac{1}{x_{2}}
$$

Week 4: (Due 3/8) Intro: 2.17-2.20, 2.22, 2.23. In addition:
Prove the following counterpart to Theorem 2.3-10 for compensated demand functions:

Theorem Let $(p, \mu)$ where $p>0$ be given. Then there exists a basket $x>0$ such that $u(x)=\mu$ and $p \cdot x<p \cdot x^{\prime}$ for any $x^{\prime} \neq x$ satisfying $u\left(x^{\prime}\right) \geq u(x)$.

Week 5: (Due 3/22) 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

$$
v\left(p_{1}, p_{2}, m\right)=(1 / \delta)\left(\ln \left[\left(p_{1}\right)^{\delta}+\left(p_{2}\right)^{\delta}\right]\right)+\ln m
$$

where $\delta>0$.
Week 7: (Due 4/5) 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

$$
f\left(y_{1}, y_{2}\right)=y_{1} y_{2}-.2\left(y_{1}\right)^{2}-.8\left(y_{2}\right)^{2}
$$

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

$$
f\left(y_{1}, y_{2}\right)=100\left(y_{1}+y_{2}\right)+20 y_{1} y_{2}-12.5\left[\left(y_{1}\right)^{2}+\left(y_{2}\right)^{2}\right]
$$

is increasing and strictly concave.

Week 8: (Due 4/12) Intro: 4.3-4.7, 4.19, 4.23.

Week 9: (Due 4/24) Intro: 4.8-4.13.

Week 10: (Due 5/1) Intro: 5.3-5.5, 5.7-5.9, 5.16. In addition:
a. (H \& Q: 4-4) Assume a short-run total cost function of

$$
T C(x)=x^{3}-10 x^{2}+17 x+66
$$

Determine the profit-maximizing output when $p=5$.
Week 11: (Due 5/8) Intro: 5.10-5.13.

Week 12: (Due 5/15) Intro: 6.1-6.5.

Week 13: (Due 5/17) Intro: 7.1-7.5, 7.7.

