

Mike Lovell

September 1, 2000

## SYLLABUS: Economics 105 – A Mathematical Interpretation

Time: MWF, 11:00-11:50; Room 302 Fisk

Office Hours: Room 308 PAC; Mondays, 1:30-2:30; Thursday: 11:00-11:50 and by appointment.

Office hours are an extension of class time – they are *free*, so take advantage of them. If you are puzzled by concepts or topics discussed in class or in the textbook or need help with a problem set or a paper project, please come on by.

Course Web Page: [mlovell.web.wesleyan.edu/E105/](http://mlovell.web.wesleyan.edu/E105/)

Email: [mlovell@wesleyan.edu](mailto:mlovell@wesleyan.edu)

For prompt answers to your questions and suggestions, please Email the instructor or one of the Teaching Assistants

Voice: 685-2355 (or 347-9849 <10:30 PM)

Teaching Assistants:

Benjamin Landis: ([BLandis@Wesleyan.edu](mailto:BLandis@Wesleyan.edu))

Sherida Powell ([SPowell@Wesleyan.edu](mailto:SPowell@Wesleyan.edu))

Course Description: An introduction to economic analysis for students with a strong mathematical background. The determination of market equilibrium and the level of aggregate economic activity will be studied as a basis for analyzing current economic policy problems such as inflation, unemployment, pollution and antitrust policy.

This is not a course in mathematical economics; rather, it is a course for students whose background in mathematics facilitates the learning of economics. Students with an especially strong mathematical background may take advantage of optional assignments (e.g., Students with an understanding of matrix algebra may study input-output analysis; students with a working knowledge of computer programming might write a simulation program; students with a background in elementary probability and statistics can learn about portfolio selection).

If you think economics is an "easy" rather than a "hard" science, take a look at a recent issue of *Econometrica* in the Periodical Room of Olin Library.

**REGISTRATION REJECTION?** Don't Be Dejected. Do not conclude that the course is oversubscribed if your attempt to register for this course is rejected by the computer; instead, Email the instructor for information: [MLovell@Wesleyan.edu](mailto:MLovell@Wesleyan.edu).

The computer often does not know which students have done well on the Calculus Advanced Placement Test. And it may not recognize calculus courses from other institutions or some more advanced calculus courses offered at Wesleyan. If the computer does not recognize that you are eligible to take this course, please pick up a Prerequisite Override form from the registrar and ask the instructor to sign it on the first day of class.

**Econ 105 CALCULUS PREREQUISITE**: A working knowledge of calculus as established by satisfactory completion of Math 118 or above, by a score of 4 or 5 on the Calculus Advanced Placement test (AB or BC), or by superior achievement on the Math Placement Examination administered to all entering students during the Orientation Period. *No previous study of economics is assumed.*

**NOTE**: This course satisfies all the prerequisites for the economics major and for intermediate economics courses numbered 200 and above. That is to say, students who satisfactorily complete this course will be eligible, starting in the spring of this academic year, to enroll in any economics courses requiring both Econ 111 and Econ 112 as prerequisites.

**ALTERNATIVES:** Economics 105 is only one of a number of alternative introductory courses in economics offered at Wesleyan. This course is recommended for students with a strong mathematical background. You should consider carefully the options listed in the Course Book.

**REQUIRED PURCHASES:**

A pad of graph paper.

An inexpensive pocket calculator ( $e^x$  and  $y^x$  keys).

**REQUIRED TEXTBOOK:**

1. The basic textbook for E105 is my new text, *Economics: A Calculus Introduction*, which is not yet in print. It will be available in course packets from Atticus, or you may download and print it out from the course home page for free. The first three chapters may be accessed from the E105 course home page. The remaining chapters will be available from the electronic reserve room and in additional course packets. Preliminary drafts of a number of chapters are available from last year's E105 Home Page.
2. *Economics 00/01: Annual Editions* (ISBN 0-07-236513-7). This paperback has a number of current event articles on wide-ranging economic issues, a glossary of economic concepts, and a guide to Economic Web Sites.

**SUGGESTIONS:** Keep informed on current economic developments by reading the financial pages of the *New York Times*, the *Wall Street Journal*, or *The Economist*. You may subscribe to the *Wall Street Journal* (both print and internet) at the reduced rate of 15 weeks for \$29.95 or to *The Economist* at \$39.90 for 26 weeks by signing the form in the Economics Department Office, Room 123 Public Affairs Center. The *Wall Street Journal* will bill you; *The Economist* requires that you provide a credit card number or a personal check.

You may (or may not) find it helpful to consult any edition of a conventional introductory economics textbook from time to time, such as Paul A. Samuelson and William Nordhaus, *Economics* or Case and Fair, *Principles of Economics*. Borrow your roommates.

**PROBLEM SETS:** The Problem Sets are designed to help you master the material. Problem sets must be submitted on schedule. Work independently; if you need help, ask the instructor and/or the Teaching Assistant for hints and suggestions. The TA's will gladly help you work through the problem sets but they will not give you the answers

You are encouraged to consult with your classmates about strategies for solving problem sets. *Copying another student's problem set constitutes plagiarism, a very serious violation of the Honor Code!*

### Honor Code

All work handed in must be your own and must have been done for this course only. This distinction is generally clear enough to make in practice; when in doubt, talk it over with your instructor.

This does not mean that you must refrain from discussing topics with other students as an aid to understanding the material, but it does preclude copying other students' work. You are expected to discourage such behavior on the part of others.

If you receive assistance on an assignment from a fellow student (other than a teaching assistant), you must indicate both the nature of the assistance and the name of your helper on the first page of your assignment.

You should not turn in the same work for both this course and for another course unless the arrangement has been cleared with both instructors in advance. If a term paper or other assignment is related to work that you have submitted or will be submitting in another course (either in the current or prior semesters) you must indicate this on the first page of your assignment.

**WRITING PROJECT:** You will use the EconLit electronic data base to locate in the library an article or book in economics on a topic of particular interest to you and prepare a two or three page written report. A memorandum describing this assignment will be distributed shortly.

**MECHANICS:**

1. If you neglect to pick up a handout in class, printout a copy from the E105 home page. Or look for a copy in the Econ 105 folder at the front window of the Economics Office on the first floor of the Public Affairs Center; if the supply is exhausted, please ask the department secretary to photo-copy one for you.
2. In order to provide prompt feedback, we plan to return all problem sets to you within three days; samples of completed problem sets may be placed on reserve in the Lovell ECON 105 Booklet. Turn your problem sets in at class time or in the ECON 105 slot in the Economics Alcove, just around the corner to the left of the Economics Office, Room 123 PAC (near the main entrance to the Public Affairs Center).
3. If you do not pick up homework and problem sets when they are returned in class, look for them in the alphabetical slots located in the Economics Alcove.
4. In order to avoid disturbing the class, please be seated in the classroom on time. You are expected to attend classes regularly (See *Academic Information and Regulations* on this and related matters) — a grade penalty may be arbitrarily imposed for flagrant violations of these rules. Incompletes will normally not be granted, and in any event equity requires that a grade penalty be imposed on late work.
5. In order to keep you posted on your progress, there will be two quizzes and a final examination. Please use a pen.
6. In order to facilitate the administration of justice, all students enrolled in this course will take quizzes and the final examination as scheduled, except in the case of documented incapacitating illness or serious family emergency.
7. Your final grade will be the maximum grade calculated from several alternative grade production functions, such as:  

$$\text{Grade}_1 = 10\% \text{ Quiz\#1} + 15\% \text{ Quiz\#2} + 40\% \text{ Final} + 20\% \text{ Problem sets} + 15\% \text{ Writing Project}$$

$$\text{Grade}_2 = 10\% \text{ Quiz\#1} + 10\% \text{ Quiz\#2} + 45\% \text{ Final} + 25\% \text{ Problem sets} + 10\% \text{ Writing Project}$$
8. If you take the course in the CR/U grading mode, you must earn at least a C- on your course work to receive credit.

**TENTATIVE SCHEDULE:**

Quizzes on September 27th and October 27th.

Writing Project: Article title: Oct 11<sup>th</sup>; Peer Review Draft: November 15<sup>th</sup>; Final Draft: December 1st.

Optional Review Session, Wednesday, December 13<sup>th</sup>, 11:00-11:50.

Final: Tuesday, December 19<sup>th</sup>, 9:00-12:00 am.

**QUESTIONS AND SUGGESTIONS:**

I shall be happy to discuss the reasonableness of these arrangements with you during the first week of the semester. If you have a problem with the date of the Quiz or the final, you must let me know at least two days before the end of the drop/add period.

**RESERVE MATERIAL:**

The following items are on reserve in Olin. You will have assigned readings from some of these books; others are of general interest and may provide a potential source of background material for independent reading and research projects.

Econ 105 Booklet: (ZZABC). We shall be adding some of the better problem set answers to this file as the semester progresses.

William Baumol, *Economic Theory and Operations Analysis*, 4th ed. (HB 135 B38)

Brian Binger and Elizabeth Hoffman, *Microeconomics with Calculus*, Scotts Foresman, 1988 (HB 172 B52)

Sidney Davidson, Schindler and Weil, *Accounting: The Language of Business*. (HF/56721/D28)

Ralph Davidson, Vernon L. Smith, and Jay Wiley, *Economics: An Analytical Approach*, Irwin, 1962

Harold T. Davis, *The Theory of Econometrics*, 1941 (HB/71/D33)

Henderson and Quandt, *Microeconomic Theory* (HB 171.H52)

Charles Holt, Modigliani, Muth and Simon, *Planning Production, Inventories and Work Force*. (HD 31.H62)

Weiss, Leonard, *Case Studies in American Industry* (hc 106 w515)

Please immediately advise the secretaries in the Economics Department Office or the instructor if you encounter difficulties in obtaining reserve materials.

## READING ASSIGNMENTS:

Each of the 10 following components will have a corresponding chapter in the Course Packets and on the course home page. *EconAE*: refers to *Economics: Annual Editions*. There will be additional reading assignments.

Preface: *Optional*~ Available from the E105 Homepage but not on the internet.

#1: **Introduction**: Economics Defined, Allocating Resources, Adam Smith and the Invisible Hand, Economic Performance, Economic research topics

*Optional*: Susan M. Collins, "Minority Groups in the Economics Profession," *Journal of Economic Perspectives*, Spring 2000, pp 133-148 (in periodical room).

#2: **Production Possibilities**: Production Transformation Curve, Mobilizing for World War II Opportunity Cost, Linear Programming — Korean War, The Gains from Trade

*EconAE*: #1 "How Much for a Life?,"

*EconAE*: #43: "Why Trade is Good for You"

#3: **Supply and Demand**: How Markets Work: The Market Mechanism, Point and Arc Elasticity, Price Ceilings and Shortages, The Foreign Exchange Market

*EconAE*: #7, "Smoke Signals"

#4: **Maximizing Satisfaction**: Utilitarianism, Amartya Sen's Complaint, John Rawls, utility maximization and the Law of Demand, Equity versus Efficiency, Gains from Trade

#5: **The Business Enterprise**: Theory of the Firm.: Accounting, Production & Cost Functions, Optimal Lot Size & Just in Time, Regulating Monopoly

*EconAE*: #13: "Who should be in charge?"

#6: **Market Structure**: Monopoly versus Competition, Innovation, Patents and Dynamic Efficiency, Price Discrimination, Monopolistic Competition, Oligopoly, Game Theory, Anti Trust

*Economic Report of the President*, 1999, Ch. 5: "Regulation and Innovation" on reserve & the net

*EconAE*: #10 "I Can Get it Cheaper than You"

*EconAE*: #12 "Oligopoly: Highly Concentrated Markets Across the US Economy"

*EconAE*: #15 "Cable Rates Rising as Industry Nears End of Regulation"

#7: **Income and its Distribution**: Fractiles and the Gini Coefficient, World Wide Inequality; Wages, Labor's share, Interest and Profits; Welfare Programs

*EconAE*: #23: "Most Adults Find Jobs After Leaving Welfare; Many Struggle on Low Pay..."

#8: **Monitoring Economic Performance**: Estimating Unemployment, Okun's Law, Inflation Arithmetic, The Real Wage, The Real Rate of Interest

#9: **GNP Accounting and the Multiplier**: Measuring the Nation's Output, Some GNP Identities, The Simple Multiplier: Depression Economics, the Business Cycle

*EconAE*: #49 "What Next for Japan," Martin Feldstein

#10: **Money, Prices and Output**: Investment and The IS and LM Curves, Central Banking, money supply defined, Cost Push Inflation and the Fed's Policy Dilemma

Derivation of the Aggregate Demand Curve, Monetarists versus Keynesians

Time Permitting, we will cover the following two extra topics:

#11: **Dynamics and Uncertainty**, Speculation, Future Markets, and Expectations, Rational Expectations, Expectations Augmented Phillips Curve; Policy Impossibility Theorem

#12: **Economic Growth**: Long run population, output, and productivity. Overlapping Generations, The Solow-Swan Growth Model