Elliott School Online Intermediate Microeconomics Program (Summer 2019)

This online (non-credit) program is designed to give students a background in intermediate microeconomics. The program presumes knowledge of introductory microeconomics. Graphical and algebraic techniques will be used and the emphasis will be on developing strong economic intuition. Formal mathematical modeling using calculus is not developed in the program. The content will include a combination of streaming pre-recorded lectures, weekly live online office hours held on Saturday and Sunday, weekly homework assignments, two quizzes and a final exam. An example of one of the lectures can be found here.

- The primary goal of this program is to prepare students take courses at the Elliott School, especially Econ 6283 (International Trade Theory and Policy) and Econ 6250 (Survey of Economic Development). The program also could help prepare candidates entering the public policy and applied economics programs at George Washington University.
- The program also will prepare students to satisfy the intermediate microeconomic theory proficiency requirement for the Elliott School's MIEP program.

The core of the program lasts between June 3rd and ends on August 4th. During this period, participants will have periodic graded homework assignments and weekly online office hours on Saturday and Sunday with a teaching assistant. (Due dates for homework: June 16th, June 30th, July 14th, and July 28th). In addition, two quizzes will be due no later than July 7th and August 4th.

A final exam will be held (in person) on August 22 on the George Washington University campus.

Participants will have access to all materials as soon as payment is received by the Elliott School's Institute for International Economic Policy (IIEP). Teaching assistant support will only be available between June 3rd and August 4th.

Participants generally will have significant flexibility for completing activities, especially the online video lectures.

- The program is "asynchronous," i.e., there are no set times for participants to meet simultaneously except for the final exam on August 22.
- However, there are firm final due dates for electronic submission of homework and quizzes to help ensure that students make steady progress. **Late submissions will receive a 30 percent penalty.**
- Participants are welcome to turn in the material in advance of these deadlines. This may help students traveling during the summer.
- Additional problems and answer keys are provided in each part of the program. These are not graded but will be very useful practice.

All assignments are "open book" so that students may consult readings and online videos when completing the required work.

Assessing Participant Progress
Participants must receive 70 percent of all available points to "pass" the program.

- Homework assignments (4): 32 percent
- Take-home quizzes (2): 32 percent
- Final exam: 36 percent

The main set of resources are video lectures offered either through Vimeo or YouTube. Homework assignments and quizzes will be distributed through "Coursesites.com".

Treat the video lectures as you would an in-person class. Take detailed notes. Repeat the videos to understand concepts you do not understand. Economics is a discipline that one can only understand by writing and practicing. Passive viewing will not be sufficient for the vast majority of students.

Program Overview
Microeconomics is the study of how consumers, workers, firms and governments make "optimal" choices when resources are limited. This analysis will focus on situations where these agents have choices between two options, i.e. relative prices and relative costs will play a central role. We will examine both perfect competition and imperfect competition, including monopoly, monopolistic competition, duopoly, and monopsony models. We will also develop basic tools used in public policy to understand for example, the economic impact of taxes, subsidies, international trade, and international economic development programs.

Textbook: There is no required textbook but almost any intermediate microeconomics textbook will cover these issues, which are fundamental to the subject. <u>Microeconomics</u> by Goolsbee, Levitt, and Syverson is particularly helpful and relevant reading assignments in that textbook will be noted. Used versions of this textbook can be found easily on the Internet.

Program Prerequisites: Participants must have successfully completed an introductory microeconomics course before beginning this program. Participants must be able to manipulate, interpret, and understand graphs and be able to do simple algebra. Calculus is ***<u>not</u>*** used in this program.

Program Schedule Overview: The program is divided into various sections.

- Part 1 includes a quick review of microeconomics principles topics. Topics covered include supply and demand curves, producer and consumer surplus, cost curves, perfect competition and monopoly. This is presumed knowledge throughout the program.

- Part 2 is an introduction to consumer theory using utility functions, indifference curves and budget constraints as the primary tools.

- Part 3 introduces neoclassical production theory. The principal tools are production functions, isoquants, and isocost lines. We will examine factor markets and the optimal choice of labor and capital by a profit-maximizing firm in a perfectly competitive setting.

- Part 4 includes a discussion of the implication of various types of imperfect competition, including monopoly, monopolistic competition, and duopoly markets (Cournot and Bertrand). We will also introduce monopsony models, i.e. situations with only one buyer of a product.

- Parts 5 and 6 introduces general equilibrium results as well as choices made over time.

- Part 7 examines the impact of various government interventions when the market is working efficiently. The focus will be on identifying and explaining "deadweight losses" as means to measure economic inefficiency.

- Part 8 looks at various types of market failures and potential government actions to improve on the "free market" outcomes. These market problems include externalities, public goods, and common resources.

Detailed program schedule (tentative)

Program begins on June 3rd
Week 1:
Online office hours: June 8th and 9th
Finish Part 1 (Micro review) by June 9th

Week 2:
Online office hours: June 15th and June 16th
Finish Part 2 (Consumer Theory) by June 16th
Homework #1 (Parts 1 and 2) due ***no later than*** midnight June 16th (EDT)

Week 3:
Online office hours: June 22nd and June 23rd
Finish Part 3 (Production theory) by June 23rd

Week 4:
Online office hours: June 29th and June 30th
Finish Part 4 (Imperfect competition) by June 30th
Homework #2 (Parts 3 and 4) due ***no later than*** midnight June 30th (EDT)

July 1st - July 5th (Independence Day break)

Week 5
Online office hours July 6th and July 7th
Finish Part 5 (General Equilibrium) by July 7th

Quiz #1 (Parts 1-4) due ***no later than*** July 7th at midnight (EDT)

Week 6
Online office hours July 13th and 14th
Finish Part 6 (Intertemporal Choice) by July 14th
Homework #3 (Parts 5 and 6) due ***no later than*** midnight July 14th (EDT)

Week 7
Online office hours July 20th and July 21st
Finish Part 7 (Government Intervention) by July 21st

Week 8
Online office hours July 27th and July 28th
Finish Part 8 (Externalities and Public Goods) by July 28th
Homework #4 (Parts 7 and 8) due ***no later than*** midnight July 28th (EDT)

Quiz #2 (Parts 5-8) due ***no later than*** midnight August 4th (EDT)

August 22nd: Final exam covering Parts 1-8

Detailed list of topics covered

Part 1 Microeconomics principles review

- Demand Curve and Consumer Surplus
- Supply Curve and Producer Surplus
- Market equilibrium with perfect competition
- Excess supply and excess demand: price adjustment
- "Shifters" of supply and demand curves
- Supply curve shifts: impact on consumer and producer surplus
- Price elasticity of supply and demand
- Cross-price elasticity
- Income elasticity of demand
- Production costs
- Short-run profits and shut-down point
- Monopoly: basic outcomes with MC=MR

Part 2 Consumer Theory

- Utility function--general introduction
- Marginal rate of substitution.
- Relative prices (the price of one good compared to another)
- Consumer budget constraint (depiction of how income limits consumers' ability to buy goods)
- Budget constraint and an increase in income Optimal consumer choice with price changes
- Optimal consumer choice (Indifference curves and budget constraint combined to illustrate consumer's "optimal choice" of two goods)
- Income and substitution effects
- Deriving demand curve from indifference curves
- Homothetic tastes
- Normal goods, inferior goods, and the Income expansion path.

Part 3. Production theory

- Production function (general introduction)
- Ricardian and neoclassical production function
- Cobb-Douglas production function (introduction)
- Cobb-Douglas: constant returns, increasing returns, and decreasing returns forms
- Marginal productivity of factors
- Isoquant
- Marginal rate of technical substitution
- Wage rental ration
- Factor markets: labor market and capital market
- Real wages
- Optimal choice of labor and capital (isoquant and isocost curves)
- Capital-intensive and labor-intensive goods (definitions)

- Wage-rental ratio changes and optimal use of labor and capital
- Wage-rental ratio (input prices) and relative output prices (relative production costs)

Part 4. Imperfect competition

- Monopoly markets
- Oligopoly markets
- Monopolistic competition basics:
- Cournot competition:
- Bertrand competition.
- First degree price discrimination:
- Perfect competition vs. monopoly vs. price discrimination:
- Segmented markets and price discrimination.
- Monopsony

Part 5. General equilibrium

- Pure exchange model (Edgeworth box)
- Pareto efficiency, Pareto improvement
- Terms of trade
- Production possibilities frontier
- Ricardian model
- Neoclassical production possibilities frontier
- PPFs and social indifference curves

Part 6. Intertemporal choice

- Intertemporal budget constraint
- Intertemporal consumption equilibrium
- Interest rates and present value

Part 7. Analysis of government intervention

- Taxation: impact on markets
- Tax incidence
- Production and consumption subsidies
- Government price controls: price ceiling
- Government price controls: price floors

Part 8. Market failures

- Pecuniary vs. non-pecuniary externalities
- Positive externalities
- Negative externalities
- Public goods
- “Tragedy of the Common”