Econ 4010-090 Fall 2019 Intermediate Microeconomic Analysis

Course Syllabus: Economics 4010 Online, 3 credit hours

Instructor: Junfu Zhao (To contact me, please use Canvas mail system or email to Junfu.Zhao@utah.edu). Emails to the instructor will generally be answered within 24 hours. If you want to meet me in person, please schedule the meeting via email in advance. The location is at the Economics office on the 4th floor of the Gardner Commons Building. I strongly encourage you to use the discussion board for general questions about the chapters, quizzes and to prepare for exams – it is a great way to collaborate and connect with you peers. It is necessary to point out that most of the course materials were developed by Prof. Gabriel Lozada. I am grateful that Prof. Lozada permits me to use those materials.

Course Description: We will study neoclassical principles of resource allocation. Topics include the theory of consumer choice, the theory of the firm, introduction to general equilibrium and welfare economics, and the theory of market structures. The prerequisites for this course are: College Algebra and Econ. 2010, 2020 and 3620, or instructor's consent. This class is designated as "Quantitative Intensive" ("QI") for the purposes of fulfilling the university's QI requirement.

Text: *Intermediate Microeconomics and Its Application*. You may use either:

- the 9th edition, by Walter Nicholson, ISBN 0324171633; or
- the 10th edition, by Walter Nicholson and Christopher M. Snyder, ISBN 0324319681;
- the 11th edition, by Walter Nicholson and Christopher M. Snyder, ISBN 143904404X;
- the 12th edition, by Walter Nicholson and Christopher M. Snyder, ISBN 1133189024.

We will not use the computer disk which may be included with the book. In my opinion, for the purposes of this class, older editions are just as good as the newest edition. The earlier editions are available at lower prices on the internet than the current edition. The bookstore would not stock the earlier editions, so I did not ask them to carry books for this class; you will have to buy your book elsewhere.

Do not get Nicholson and Snyder's other textbook, called "Microeconomic Theory: Basic Principles and Extensions." That is a master's level book. Just make sure the title of the book you buy has "Intermediate" as its first word.

In addition:

1. old exams from this class, answers to old exams,
2. answers to homework problems, and
3. a small packet of class handouts

can all be found by going to www.economics.utah.edu/lozada and clicking on "Econ. 4010." However (1) and (2) can also be found on Canvas, and Prof. Lozada has built a nice interface to (1) and (2) inside of each Canvas module, so you may only have to visit the www.economics.utah.edu/lozada web site once, to print out (3), the class handouts. **Your exams will come from the material in (1) and (2)** — usually but not always unaltered — so it is very important that you study it. As the semester goes on, I will keep you up to date on where you should be in studying this material. Before each exam, be sure you can thoroughly answer the questions covered in the material without looking at their answers. Because of the availability of (1), (2) and (3), there are no additional "study guides" for this class.

General Course Objectives: The major objective is for you to fully understand the derivation of neoclassical demand and supply curves from first principles, understand market equilibrium, and understand the optimality (or lack thereof) of different types of market structures. A minor objective is for you to gain some familiarity with the most important critiques of neoclassical microeconomic theory. After all, as British economist Joan Robinson once wrote (Collected Economic Papers, 1980, Vol. 2 p. 17):

> "The purpose of studying economics is not to acquire a set of ready-made answers to economic questions, but to learn how to avoid being deceived by economists."

Course Workload: This is a 3 credit hour course. According to the University of Utah's Policy 6-100 III Sec. C6, "at the University of Utah we assume that there is at least one hour in class and two hours outside of class per week [or the equivalent combination] connected to every credit hour" (brackets added). So you should expect to study for Econ. 4010 about 9 hours every week.

The reason most students find Intermediate Microeconomics the hardest economics class in the undergraduate curriculum is that this class stresses deep understanding of detailed, even mathematical, issues. In principle it would be possible for a student who did nothing but listen to the lectures (or watch the videos) to make an 'A' in this class, just like in principle a student could become a structural engineer after a 60-minute lecture on Newton's three laws of motion, because the rest just logically follows. In practice, it takes very many hours, working problem after problem after problem, in order for most students to realize what all the implications of the basic concepts are. Once you do that, you'll realize that all you have to memorize are the basic principles, because you can construct an answer to any question just from those. In the same way, an experienced structural engineer realizes that all there is to making sure a bridge stands up is applying Newton's Laws.

Another analogy is that the lectures about economics are like a swimming instructor's lectures about how to swim. Lectures about how to swim are useful, but you do not learn how to swim

unless you get in the water and do it — eventually, all by yourself. Lectures about economic theory are useful, but you do not learn economic theory unless you can open a set of problems and work them — eventually, all by yourself. You will be a dismal failure at swimming if you try to learn how to do it just by memorizing, and you will be a dismal failure at economic theory if you try to learn how to do it just by memorizing, too.

My Background: I am currently a Ph.D. candidate in economics. I hold a Bachelor's degree in physics and a Bachelor's degree in economics, both from Tsinghua University, China. My main area of research is the world-systems theory. I am also very interested in power and inequality.

Exams: There will be two exams during the semester and a final exam at the end of the semester. The approximate exam dates are given in the schedule. You need to take the exams in person at the Uonline testing center.

Grading: Exams 1 and 2 will each be worth 25 points. The Final Exam will be comprehensive and will be worth 50 points. At the end of the semester, your course grade will be based on the sum of the grades you have made on the three exams. It will not be based on anything else: there is no way to do "extra work" at the end of the semester to earn "extra credit" to raise your grade. There is no such thing as "extra credit" in this class. To make this completely clear: if you ask me at the end of the semester if there is any extra work you can do to raise your grade, the answer is going to be no. The way to get a good grade is to study hard for the exams.

If you make above an 80% you are guaranteed to make an A-; if you make above a 55% you are guaranteed to make at least a B-; if you make above a 40% you are guaranteed to make at least a C-; and if you make above a 20% you are guaranteed to make at least a D-. However, if the following curve results in a higher grade for you then I will use it (approximately): 15%, A; 30%, B; 35%, C; 15%, D; 5% or less, E.

I will follow Prof. Lozada's way of setting up the exam questions and grading them. The exams have no multiple-choice questions. All the questions require you to compose a correct answer on a blank sheet of paper, using whatever graphs, equations, and words are appropriate and adequate. (The Canvas modules you will work through will, topic-by-topic, show you all the questions and answers from all of the old exams, but if you want to look at them right now to get an idea of what they are like, go to www.economics.utah.edu/lozada, click on the "Econ. 4010" link, then click on "Old Exam Questions and Their Answers.") The instructions to the exams say, in part, that "correct answers which are unsupported by explanations will not be awarded points." This means that even if a question does not explicitly tell you to "explain your answer," you still have to explain your answer. Students often wonder how much explanation they should put in their answers. A rule of thumb is that you do not have to explain things you knew before you started taking this class. For example, you do not have to explain why $x^2 = y + 1$ would imply that $x = \pm\sqrt{y + 1}$. On the other hand, you *do* have to explain everything you learned since you

started taking this class. The nice thing is that you can get lots of partial credit for your response even if you cannot arrive at the right final answer.

Disclaimers: Please note: *It is your responsibility to maintain your computer and related equipment in order to participate in this online course. Equipment failures will not be an acceptable excuse for late or absent assignments.* Classroom equivalency: Discussion threads, e-mails, and chat rooms in an Online course are all considered to be equivalent to classrooms, and student behavior within those environments shall conform to the Student Code.

Americans with Disabilities Act (ADA) Statement. The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD), https://disability.utah.edu/. CDS will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

Wellness Statement. Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness - www.wellness.utah.edu or 801-581-7776.

Tentative Schedule:

In the schedule:

(12) text in parentheses, like this (), pertains to the 12th edition of the textbook;

{11} text in braces, like this {}, pertains to the 11th edition of the textbook;

[10] text in brackets, like this [], pertains to the 10th edition of the textbook; and

9 text not in parentheses, braces, or brackets pertains to the 9th edition.

If there are no parentheses, brackets, or braces, the numbering is the same as the 9th edition. The words in blue are hyperlinks to the relevant module in Canvas.

> 8/19 – 8/25 (Week 1): A. Mathematics. Appendix to Chapter 1
>
> 8/26 – 9/1 (Week 2): B. The Theory of Choice. Chapter 2
>
> 9/2 – 9/8 (Week 3): C. Changes in Income and Prices. Chapter 3
>
> 9/9 – 9/15 (Week 4): D. Market Demand and Elasticity. Chapter 4{3} (3 but not section 3-9)
>
> 9/16 – 9/22 (Week 5): F. The Technology of Production. Chapter 5[7]{6}(6)

9/23 – 9/29 (Week 6): Exam on demand (the chapters before 5[7]{6}(6); A/B/C/D in old exam packet)

9/30 – 10/5, 10/14 – 10/20 (Week 7 and Week 9): G. Cost Functions. Chapter 6[8]{7}(7)

10/21 – 11/3 (Week 10 and Week 11): H. Profit. Chapter 7[9]{8}(8) (flat MR)

11/4 – 11/10 (Week 12): I. Competitive Equilibrium. Chapter 8 pages 253–267 only [297–309] {303–316} (277–289). J. Tax Incidence. Chapter 9, 293–297 [333–339] {330–332} (302–306)

11/11 – 11/17 (Week 13): Exam on supply (Chapters 5/6/7 [7/8/9] {6/7/8} (6/7/8); F/G/H in old exam packet)

11/18 – 11/24 (Week 14): K. Monopoly. Chapter 10, not 351 ff. [13, not 398ff.] {11, not 397ff.} (11, not 364ff.), rest of Chapter 7[9]{8}(9). K. Consumer and Producer Surplus. Chapter 9[11]{9} (sections 3-9 and 9-9) (284–291) [325–331] {324–330} (99–102 and 296–301)

11/25 – 12/1 (Week 15): L. Input Markets. Chapter 13[15]{13}(13)

12/2 – 12/8 (Week 16): M. Dynamic Economics. Chapter 14[16]{14}(14) & its appendix. E. The Edgeworth Box. Pp. 324–328 [363–367] {360–364} (section 10.7)

12/9 – 12/13: Comprehensive Final Exam

This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced on Canvas.


Supplemental Information

Course Overview: We will first study how to sketch the graph of a function's average and of its marginal. Next, neoclassical consumer theory (utility maximization subject to budget constraints). The middle part of the course is a very careful study of the neoclassical theory of the firm: total product curves (& their averages and marginals), total cost curves, both in the short run and in the long run (& their averages and marginals), total revenue curves (& their averages and marginals), and total profit curves (& their averages and marginals). After this comes single-market equilibrium (competitive and monopolistic), and an application to tax incidence. The course ends with an introduction to general equilibrium and welfare economics using the Edgeworth-Bowley Box.

Specific Course Objectives: In particular, students should learn to do the following.

1. Given only a sketch of the graph of a function $f(x)$, sketch the graph of its average and of its derivative (its "marginal"), as a function of x. Also, be able to do this even when the function (*f*) is not everywhere differentiable (so one can discuss income tax "brackets").

2. Given only a sketch of the average and marginal of $f(x)$, sketch the graph of $f(x)$ itself.

3. Identify and construct convex and concave functions.

4. Draw indifference curves for monotonic and nonmonotonic preferences, and identify the Marginal Rate of Substitution of these curves.

5. Draw budget constraints (both linear and nonlinear) given an explicit or implicit algebraic description of them.

6. Having drawn both indifference curves and budget constraints, show the utility-maximizing point (both for interior and boundary maxima).

7. On such a graph, illustrate the effect of changes in prices or income (sketching income expansion paths, from there sketching Engel curves and identifying inferior and normal goods and the income effect; and sketching price-offer curves, and from there identifying complements, substitutes, Giffen goods, and the substitution effect). Apply this to lump sum versus ad valorem taxation.

8. Aggregate individual demand curves and calculate and interpret their own-, cross-, and price-elasticities.

9. Explain neoclassical production functions, draw their isoquants, and both derive and sketch their average product and marginal product curves. In this context, calculate returns to scale, demonstrate the Law of Diminishing Returns, and explain why returns to scale are unrelated to diminishing returns. Calculate Rate of Technical Substitution.

10. Explain capital aggregation problems and the importance of this critique for neoclassical production theory and for its non-neoclassical alternatives.

11. Derive the sketch of the total cost, average cost, and marginal cost functions, both in the short run (for the cases when diminishing returns begin immediately and when diminishing returns do not begin immediately) and in the long run (for the cases of increasing-, constant-, decreasing-, and first-increasing-and-then-decreasing returns to scale). In the short run, identify and graph total, average, and marginal fixed cost and total, average, and marginal variable cost.

12. Graphically derive the cost-minimizing point from a derivation of the firm's isoquants and isocost curves.

13. Explain the idea of perfect competition.

14. Graph total revenue, average revenue, and marginal revenue curves for competitive firms.

15. Identify profit both on graphs of total revenue and total cost, and on graphs of average and marginal revenues and costs (both in the long run and in the short run). Identify the profit-maximizing level of output on these graphs.

16. Explain the implications of U-shaped average cost curves on existence of a competitive equilibrium.

17. Locate the incidences of a tax on a "supply and demand" diagram.

18. Explain and graph the profit-maximizing quantity for a monopolist. Contrast this with the competitive equilibrium. Also discuss the welfare consequences of monopoly, using consumer surplus, producer surplus, and social surplus.

19. For input markets, generate the total expense, average expense, and marginal expense curves; the marginal revenue product curve; and the profit-maximizing input demand. Do this both for competitive input markets and for monopsonists. Discuss the welfare consequences of monopsony, using rent and the social surplus going to input demanders.

20. Calculate the present discounted value of a cash flow and use it to make intertemporal decisions.

21. Draw and explain Edgeworth Boxes, then use them to analyze Pareto Optimality and the First Theorem of Welfare Economics. Explain the limitations of Pareto Optimality as a guide to policy.

22. Understand the caution that most attempts by U.S. textbooks to connect these topics to "real life" advance a particular ideological and political viewpoint, and because of the narrow assumptions required for the analyses taught in this class to be valid, most of those attempts are incorrect because the required technical assumptions fail to hold. Illustrate this with timely examples generated in collaboration with students.

CSBS EMERGENCY ACTION PLAN
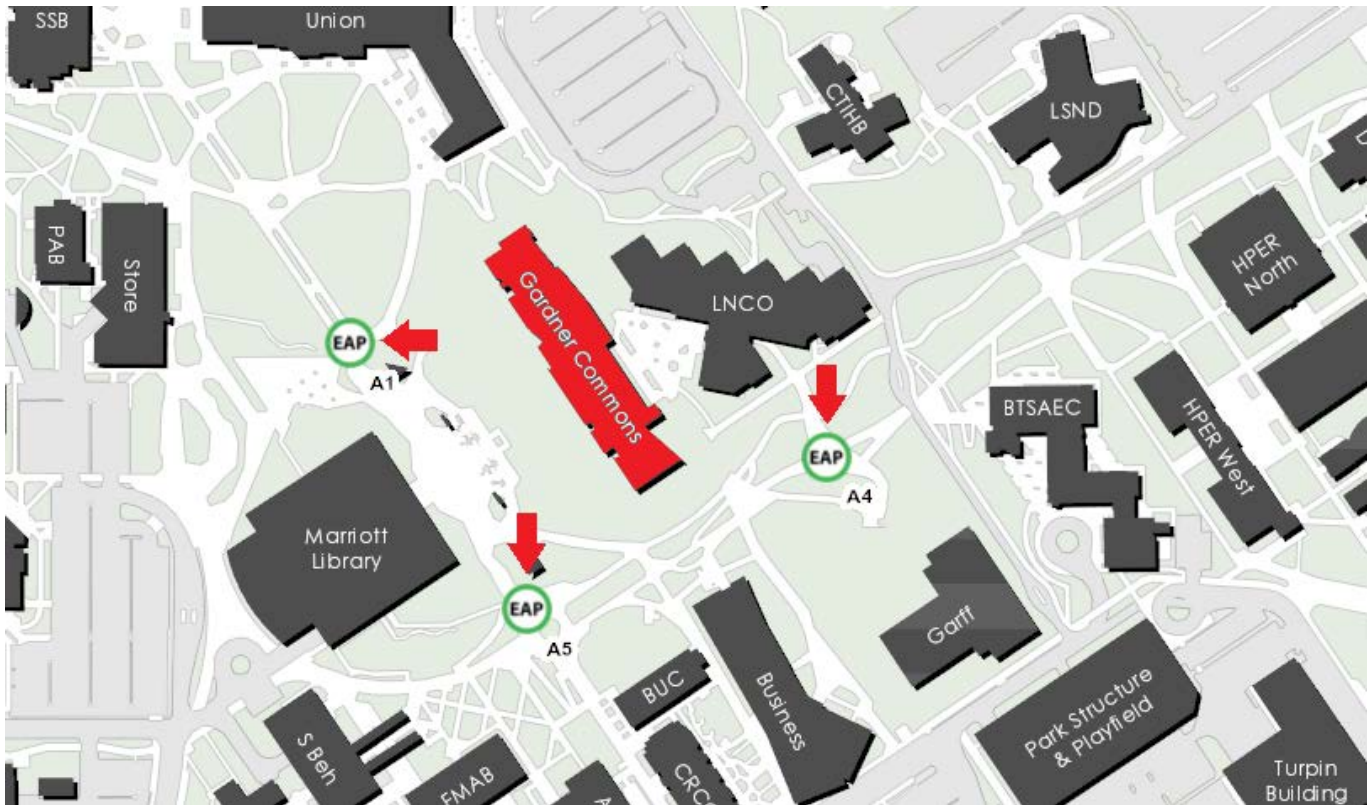
BUILDING EVACUATION

EAP (Emergency Assembly Point) – When you receive a notification to evacuate the building either by campus text alert system or by building fire alarm, please follow your instructor in an orderly fashion to the EAP marked on the map below. Once everyone is at the EAP, you will receive further instructions from Emergency Management personnel. You can also look up the EAP for any building you may be in on campus at http://emergencymanagement.utah.edu/eap.

CAMPUS RESOURCES

U Heads Up App: There's an app for that. Download the app on your smartphone at alert.utah.edu/headsup to access the following resources:

- **Emergency Response Guide:** Provides instructions on how to handle any type of emergency, such as earthquake, utility failure, fire, active shooter, etc. Flip charts with this information are also available around campus.

- **See Something, Say Something:** Report unsafe or hazardous conditions on campus. If you see a life threatening or emergency situation, please call 911!

Safety Escorts: For students who are on campus at night or past business hours and would like an escort to your car, please call 801-585-2677. You can call 24/7 and a security officer will be sent to walk with you or give you a ride to your desired on-campus location.

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