

ECONOMICS 4010  
Spring 2012  
[www.econ.utah.edu/lozada](http://www.econ.utah.edu/lozada)

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CLASS MEETING TIME & PLACE: MW 11:50am–1:10pm, OSH 237.

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; or
- the 11th edition, by Walter Nicholson and Christopher M. Snyder, ISBN 143904404X.

We will not use the computer disk which may be included with the book.

In my opinion, for the purposes of this class, the 9th and 10th editions are just as good as the 11th 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'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: old exams from this class, answers to old exams, answers to homework problems, and a small packet of class handouts can all be found by going to [www.econ.utah.edu/lozada](http://www.econ.utah.edu/lozada) and clicking on "Econ. 4010." Your exams will come from the material there, so it is very important that you study it. If you want to buy a bound version of the material which I put on the internet, it will be sold by Bookstore, starting by mid-January. I will announce in class when the Bookstore has it. (The costs of the bound version just go to cover duplication expenses; I get no money from those sales.)

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.

**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.

**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 and distinctly secondary objective is for you to gain a superficial 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.”

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 firms'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.

**COURSE WORKLOAD:** This is a 3 credit hour course. According to the University of Utah’s Policy 6-100 III Sec. 3F, (see [www.regulations.utah.edu/academics/6-100.html](http://www.regulations.utah.edu/academics/6-100.html)), “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 6 hours outside of class every week.

Most students—including myself when I was an undergraduate in Louisiana a long time ago—find Intermediate Microeconomics the hardest economics class in the undergraduate curriculum. The reason 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 my lectures 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 my 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.

As a general rule of thumb, two hours of work outside of class are necessary for each hour spent inside a college lecture class. Since this is a 3-credit-hour class, according to this rule of thumb, you should plan on working 6 hours per week outside of class studying Econ. 4010.

The instructions to my exams say, in part, that “correct answers which are unsupported by explanations will not be awarded points.” 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. If you have any doubt about the adequacy of your answer during a test, just ask me during the test. That's one of the things I am there for.

Here is an example. I asked this question on an exam:

Trapper Joe, the fur trader, has found that his production function in acquiring pelts is given by

$$q = 2\sqrt{H}$$

where  $q$  = the number of pelts acquired in a day and  $H$  = the number of hours Joe's employees spend hunting and trapping in one day. Joe pays his employees \$8 an hour.

Calculate Joe's total cost curve (as a function of  $q$ ).

A student wrote down “total cost is  $2q^2$ .” This is the right answer, but it was completely unexplained, so the student did not get credit for it. He told me later

he felt the answer was “obvious,” and so did not have to be explained. It was not obvious to most of his classmates (who got it wrong); is it obvious to you right now? (I suspect it was not even obvious to the student; he probably guessed the answer by working out a few test cases, and could not figure out the actual derivation.)

The nice thing about my way of grading is that you can get lots of partial credit for your response even if you cannot arrive at the right final answer. This can increase your grade significantly. In fact, you can get full credit on a problem even if its final answer is wrong, if I can see that what made your final answer wrong was that you made an inadvertent mistake about something you really do know (such as writing  $4 \times 2 = 6$ ). This is another reason to show all your work.

**MY BACKGROUND:** My current rank is Associate Professor. I hold a BA degree in Economics and a BS degree in Physics, both from Louisiana State University. I hold an MS degree in Engineering-Economic Systems, an MA degree in Economics, and a PhD degree in Economics, all from Stanford University. My main area of research is the microeconomic theory of exhaustible resource industries. However, I have published work in other areas of dynamic economics, such as finance. I regularly teach microeconomic theory at the undergraduate and PhD levels, and resource and environmental economics at the introductory, advanced undergraduate, and advanced PhD levels. I have also taught Mathematical Economics at the PhD level.

**OFFICE HOURS:** My office hours this semester will be MW 10:50–11:45AM. You may also make an appointment to see me. In addition, you can stop by my office without an appointment at any time, and if I am not being pressured by other work I will make time then to answer your questions.

**GRADING:** There will be two closed-book in-class exams, each 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 raise your grade.

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.

In a recent past semester, the 35 students who took 4010 generated the following distribution out of 100 points possible:

- 3 students scored between 81 and 100
- 6 scored between 61 and 80
- 10 scored between 41 and 60
- 10 scored between 21 and 40
- 6 scored between 0 and 20

The high score in that class was 97 out of 100; the low score (among students who took all three exams) was 4 out of 100.

For exams, you should bring a blue book. You may use a calculator, but only a simple one; it should not be able to graph or store text.

#### POLICIES:

1. You cannot miss an exam and take a makeup exam unless I give you permission to do so. Without my permission, you will earn a zero on any exams which you miss.

To get my permission to take a makeup exam, you must give me notice before the class takes its exam (if at all possible), and before you take the makeup exam, you must supply written evidence of your reason for missing the in-class exam. If the reason is illness, a note from a doctor will be sufficient.

I will let you know if I think your reason is good enough to warrant letting you take a makeup exam. If your reason is that you are participating in a university-sponsored activity, I will always allow you to take a makeup. Otherwise, I will make the decision on a case-by-case basis.

In addition, there are limited circumstances in which I may let you take an exam early.

I will only give a makeup final if:

- (a) You are very ill. You must be under a physician's care for this condition, and you must supply a note from your physician stating that it is his/her opinion that you were too ill to take the exam at its regularly scheduled time.

- (b) An immediate family member is very ill *and* you have a very good reason why this prevents you from attending the final. I will be the judge of whether your reason is good enough. I will require a note from your family member's physician verifying your story about the illness.

If you had a last-minute automobile breakdown or other transportation failure, I expect you to get to the final as quickly as you can and take it then. In such a situation, I may or may not extend your time to finish the exam.

2. Incompletes will be given only for reasons of illness or a family emergency. You must supply written evidence for the reason. According to university regulations (Policy 6-100 III Section 8), you must be passing the class at the time you get an incomplete.
3. Cheating on exams and other forms of academic dishonesty may lead to expulsion from the class, failure of the class, or more severe penalties. In accordance with University regulations (University Policy 6-400, Section V, "Academic Misconduct," 4), if you are caught cheating in this class, I must send a letter to your dean about that, and the letter will be put in your permanent University file. I have done this for several students already, so don't cheat.
4. All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, available at

[www.regulations.utah.edu/academics/6-400.html](http://www.regulations.utah.edu/academics/6-400.html).

Students have specific rights in the classroom as detailed in Section II of the Code. The Code also specifies proscribed conduct (Sections III and V) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. Students have the right to appeal sanctions imposed under the Code to the Student Behavior Committee.

5. 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 Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations.

#### TENTATIVE SCHEDULE:

While the following schedule is tentative, I will always give you at least one week's notice of the *exact* date of your exams. Text in brackets, like this [], pertains to the

10th edition of the textbook; text not in brackets pertains to the 9th edition. (Let me know if you'd like me to update this for the 11th edition.)

- 1/9, 11: Appendix to Chapter 1
- 1/18, 23: Chapter 2
- 1/25, 1/30: Chapter 3
- 2/1, 2/6: Chapter 4
- 2/8: Chapter 5[7]
- 2/13: Exam on demand (the chapters before 5[7]; A/B/C/D in old exam packet)
- 2/15: Chapter 5[7]
- 2/22, 2/27, 2/29, 3/5: Chapters 5[7] and 6[8]
- 3/7, 19, 21, 26: Chapter 7[9] (flat MR)
- 3/28: Exam on supply (Chapters 5/6/7[7/8/9]; F/G/H in old exam packet)
- 4/2, 4/4: Chapter 8 (253–267 only) [10, 297–309]
- 4/9: Chapter 9 on Tax Incidence (293–297) [11 (333–339)]
- 4/11, 16: Chapter 10 (not 351 ff.) [13 not 398ff.], rest of Chapter 7[9], and Chapter 9[11] on Consumer and Producer Surplus (284–291)[325–331]
- 4/18: Chapter 13[15]
- 4/23: Chapter 14[16] & its appendix
- 4/25: Pp. 324–328 [363–367]

Wednesday May 2: comprehensive Final Exam from 10:30 am 12:30 pm.

*Note.* If I am going to be more than five minutes late for class due to weather or other reasons, I will notify the Economics Department and a Departmental representative will meet the class and tell you when the class will begin. If no Departmental representative meets the class, you may inquire by calling the Economics Department at (801) 581-7481. You may find a description of my other responsibilities at [www.regulations.utah.edu/academics/6-316.html](http://www.regulations.utah.edu/academics/6-316.html).