Topics in Microeconomics

Syllabus

This course focuses on two separate topics that have many applications in economics: decision-making under uncertainty and dynamic optimization. In the class, we will develop the theory of expected utility, discuss some of its limitations and study some applications. In addition to textbook treatments, we will also study some classic papers on these topics.

Class: MW 7-8th periods, MAT 114
Office Hours: Wednesdays 10:00 am – 12:00 noon, MAT 328 For other times, please make an appointment.
Office: Matherly 328
Phone: 392-2999
Email: hamilton@ufl.edu.

Prerequisites

A course in differential equations or ECO 7408 in Fall 2018. If you have neither of these, please consult with the instructor before enrolling.

Requirements

1) Problem sets: approximately one per week.

These must be turned in and your performance may affect your final grade positively if you are near a cutoff.

2) Final exam: Monday 10 December 3:00 – 5:30 pm, or TBA.

Required Texts

(KS) Kamien and Schwartz, *Dynamic Optimization: The Calculus of Variations and Optimal Control in Economics and Management* (North-Holland, 2nd edition, 1991)

(L) Laffont, *The Economics of Uncertainty and Information* (MIT Press, 1989)

Supplemental References

These texts differ in their levels of sophistication. They do not emphasize solutions to classical equations of physics and engineering. Find one that suits your background if you need a reference.

Blume and Simon, Mathematics for Economics (Norton)

Sanchez, Ordinary Differential Equations and Stability Theory: An Introduction (Dover paperback)

Léonard and Long, *Optimal Control Theory and Static Optimization in Economics* (Cambridge paperback)

Schedule

15 October	Introduction to Decision-Making under	
	Uncertainty	
17 October	Expected Utility Hypothesis	L 1
22 October	Expected Utility continued	
24 October	Risk Aversion	L 2
29 October	More on Risk Aversion Measures	
31 October	Contingent Markets	L 5
5 November	Insurance	L 8
7 November	Introduction to Dynamic Optimization	KS I.1-I.2
12 November	No class (Veteran's Day)	
14 November	The basic problem; the Euler equation	KS I.3-I.4
19 November	No class (SEA Meetings)	
21 November	No class ((Day before Thanksgiving)	
26 November	Free End Value, Qualitative Analysis	KS I.8, I.17
28 November	Optimal control	KS II.1-II.4
3 December	Endpoint conditions	KS II.5-II.7
5 December	Discounting and infinite horizon problems	KS II.8-II.9
TBA	Review	
10 December	Final Exam	

Supplementary Readings:

Uncertainty:

Rothschild and Stiglitz, "Increasing Risk: I. A Definition," *Journal of Economic Theory* 2: 225-243 (1970)

Rothschild and Stiglitz, "Increasing Risk: II. Its Economic Consequences," *Journal of Economic Theory* 3: 66-84 (1971)

Exhaustible Resources:

Hotelling, "The Economics of Exhaustible Resources," *Journal of Political Economy* 39: 137-175 (1931)

Optimal Growth:

Cass, "Optimum Growth in an Aggregative Model of Capital Accumulation," *Review of Economic Studies* 32: 233-240 (1965)

Alternative Sources on Expected Utility:

Akira Takayama, Analytical Methods in Economics (Michigan, 1993), Ch. 5, p. 255-321
Eugene Silberberg and Wing Suen, The Structure of Economics: A Mathematical Analysis (3rd Edition, McGraw-Hill, 2001), Ch. 13, p. 394-417
Ken Binmore, Playing for Real (Oxford, 2007), Ch. 4, p. 111-142

Access to these articles can be found in such sources as <u>http://www.jstor.org/</u> and <u>http://www.sciencedirect.com/science/journals</u> (from UF campus or using Gatorlink VPN).

Enrollment in this course constitutes acknowledgement of the following:

1) I understand that the University of Florida expects its students to be honest in all of their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action, up to and including expulsion from the University.

2) I will adhere to university copyright policies as found at <u>https://security.ufl.edu/learn-information-security/protect-yourself/copyright-information/</u>.

3) Students requesting classroom accommodation must first register with the Disability Resource Center. See <u>http://www.dso.ufl.edu/drc</u>.