UNIVERSITY OF CALIFORNIA, SAN DIEGO

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DEPARTMENT OF ECONOMICS
ECON 171: DECISIONS UNDER UNCERTAINTY

LOCATION: CENTR 105
TIME: M/W 11:00AM-1:50PM

SUMMER SESSION I 2014
SYLLABUS

Instructor: Steven B. Levkoff, Ph.D.
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Course Webpage: http://ted.ucsd.edu
Office: Economics Building, Room 111
Office Hours: Mondays & Wednesdays, 5:00pm-6:00pm, open door, or by appointment
Teaching Assistants: Denise Clayton (dhammock@ucsd.edu) , Guangming Xu (guxu@ucsd.edu)

Course Description: This course provides an analytical framework for making choices when elements of the economic environment are uncertain. Topics include, but are not limited to, probability theory, expected utility, risk aversion, insurance markets, information economics, value of information, decision theory, game theory, behavioral economics, finance & portfolio theory.

Prerequisites: In order to be enrolled in this course, you should have taken the following: Econ 100A or 170A (intermediate microeconomics); AND Econ 120A or ECE 109 or Math 180A or Math 183 or Math 186 (some course in probability & statistics). Some foundations will be presented and reviewed towards the beginning of the course.

Readings:

Primary:

- [1] *The Economics of Uncertainty and Information*, by Timothy Van Zandt, INSEAD, 2006. This is the main text for the course and will be provided free to view via the TED course page.
- [2] *Information Economics*, by Urs Birchler and Monika Butler, Routledge 2007. Good book on information economics. Very closely related to the material in this course.

- [3] *The Economics of Uncertainty and Information*, by Jean Jaques Laffont, MIT Press, 1989. This is for the advanced, curious reader only. Mathematically rigorous.
- [4] Chris Chambers's Supplemental Notes
- [5] Supplemental Slides & Readings

Secondary:

- [6] *Fooled By Randomness*, Nassim N. Taleb. Excellent book that everyone should read about how human nature tends to cloud peoples' assessments of uncertainty, especially in making financial decisions. Entire book should be read over duration of course.
- [7] *The Black Swan*, by Nassim N. Taleb. A follow up to the discussion in [6]. Also an excellent read and should be read by everyone. Entire book should be read over duration of course.
- [8] *Predictably Irrational*, by Dan Ariley. Very interesting and light read about how peoples' behaviors tend to violate many axioms of expected utility and choice under uncertainty. Written by a behavioral economist. Read as suggested via supplemental readings.

Homework: While not a formal part of the course grade, problem sets will play a crucial role in developing your problem solving skills and should be taken *very seriously*. In the past, it has often been the case (and is no secret if you look at my course evaluations online) that students putting the most effort into the problem sets tend to perform best on the exams because *the problem sets tend to be much more difficult than exams*. Problem sets will be assigned regularly via TED. You are encouraged to work together to solve problem sets, discuss them in the TED discussion forum, and to ask questions of your TAs in discussion, office hours, and via email when convenient.

TED Access (course webpage): It is your responsibility to make sure you are enrolled in the online course (TED) and to routinely check it and your email for announcements and to access newly distributed material. You can email IWDC@ucsd.ed to get TED access for the course if you have added late. CC the instructor of the course (slevkoff@ucsd.edu) in the email to expedite approval.

Examinations: Due to the brief nature of summer session, the course will have only two exams: a midterm (administered at approximately weeks 5) and a final examination scheduled by the registrar. You can view the official final exam schedule at https://act.ucsd.edu/cgi-bin/tritonlink.pl/2/students/academic/classes/schedule_of_classes.pl. Please monitor this routinely for any schedule changes. All exams are cumulative (but not necessarily uniformly so).

Grading:		
	Midterm Exam (Monday, 7/14/14)	40%
	Final Exam (Friday 8/1/14)	60%
	Total	100%

The course is graded on a relative curve (as is any college course). In particular, students will all be ranked from highest to lowest course score according to your final course grade calculated from the raw exam score weighting above. Letter grade assignments will depend on your percentile ranking in the class and a subjective assessment by the instructor in borderline cases (say, if there was marked improvement).

In the past, a student could typically guarantee themselves an A by ranking in the top 25% of students in the course and a B by ranking in the top 60%.

Some students feel that the grading scheme is risky in the sense that you have only 2 opportunities to prove yourself, so I will add the following "buffer" because I understand that sometimes people may have a bad midterm exam sitting: Since the final exam is cumulative, if you score a solid A on the final exam, (and ONLY a solid A), I will give you an A in the course and disregard your midterm grades (provided you've taken ALL of the midterms). I reserve the right to revoke this policy at any time for any reason.

Midterm Exam Re-grade Policy: It should be known that there may be some questions on the exams that have no right or wrong answer, so how credit is awarded depends crucially on *how* you defended your answer. Accordingly, there is a *BIG* difference between an answer being a *technically correct answer* and an answer being ***the best answer***. In these cases, credit is awarded (according to the grading rubric) for how close your answer comes to being the *best answer*. That is, an answer, while being technically correct, may not necessarily have been the best answer and hence, wouldn't necessarily receive full credit despite technical correctness.

After your exams are graded, your TA's will allow you *to see* your exam in either discussion or their office hours. If you find that there was a minor grading issue (ie: points were <u>added up</u> incorrectly), let us know and we will remunerate accordingly. If there is a major issue (ie: you don't think points were <u>awarded</u> correctly according to the grading rubric), DO NOT remove the exam from the TA's possession – leave it with your TA with a note on the front cover regarding the specifics of the re-grade request.

If your request for a re-grade is granted, the ENTIRE exam will be regarded (not just the part in question) and this could possibly result in higher OR lower scores. *Once you take the exam from the TA's possession, it can no longer qualify for a re-grade.* You have <u>one week</u> from the announcement of the grade distribution to resolve grading issues. Otherwise, grades are NON-NEGOTIABLE and any requests that are determined to be *excessive* in scope may warrant further point deductions unless sound arguments are used to justify the request. The instructor and TAs reserve the right to refuse any request believed to be *excessive*.

Absences & Attendance: Any exam or quiz missed for a *legitimate, university approved* reason may be made up at the discretion of the instructor (this may include an oral evaluation as an alternative to taking a written exam or a re-weighting of the exams in the grade calculation shown above). You will receive a zero on any exam or quiz missed without a legitimate reason.

Supplemental Material & Slides: Throughout the course, the instructor may post supplemental readings and slides via TED. These materials are meant to be used in

addition to the lecture and are not to be used as a substitute for going to lecture or reading the textbook. The instructor reserves the right to remove access to this material if he feels that it has adversely affected attendance in the lecture.

Classroom Decorum & Email: To avoid distracting others in the classroom, please arrive on time and do not leave early unless given prior permission. When class is in session, please respect others in the room and refrain from sending or receiving phone calls, pages, or text messages. Please be sure audible signals are turned off before class begins. Please restrict the use of email to the minimally necessary volume and put your full name at the end of email messages and the course name and number in the subject heading. Email questions regarding *how to do a particular homework problem* should be first directed to your TAs. If you can't make it to office hours, you can also email specific homework questions to your TAs who will respond to your query. Questions regarding course policies will be directed to the syllabus (if applicable). All other general questions are welcome!

Statement of Academic Integrity: Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind.

Examination Policies: Consistent with the University's mission to preserve academic integrity, there are several policies and procedures that must be adhered to by students during exams.

1) In order to be allowed into the exam, students must have:
    - A BLUE or BLACK PEN (NO PENCILS!!! If you use pencil, you forfeit your chance for a re-grade.)
    - A BASIC or SCIENTIFIC calculator (no graphing calculators, cell phones, or other mobile devices unless given prior approval by the instructor)
    - Your UCSD student ID
2) During the exam, the following policies will be enforced:
    - Your seat will be randomized for each exam. When you enter the lecture on exam day, find your name and assigned seat number on the projector and quickly and quietly sit. Once everyone is seated, the exam will be handed out.
    - NO BATHROOM BREAKS after the first 45 minutes following the exam start. Be sure to use the restrooms before the exam begins. Exams are less than an hour and a half long! You can make it!!!
    - No hats, hoodies, or sunglasses during the exam.
    - Turn cell phones off during the exam and leave them in your bag.
3) Violations of academic integrity will not be tolerated. For this course in particular, violations include, but are not limited to anything that may be perceived as the following actions:
        - looking at or copying from other students' exams

- talking during an exam while exams are still out
- looking at notes during an exam
- taking the wrong version of an exam
- removing an exam from the examination room
- removing pages from an exam
- falsifying identification or an exam book during or after the exam
- sitting in the wrong seat during an exam (if applicable)
- using an unapproved device/item during an exam (ie: programmable calculator, cell phone, etc. - see above list)

Violation (or perceived violation) of any of the abovementioned policies will be enforced via zero tolerance and referred to the student conduct process, so don't do anything that would even come close to something that an observer would potentially interpret as academic dishonesty. NO EXCEPTIONS.

Tentative Schedule of Topics (Subject to Change):

Day	Part I	Part II	Problem Set	Special	Readings
6/30	Introduction to Choice Under Uncertainty / Syllabus / Types of Problems Faced / Discrete & Continuous Random Variables	Discrete & Continuous Probability Distributions / Density vs. Cumulative Distribution Functions	**PS #1**		[1] 1-3 [4] 2.1-2.8, 2.11 [5] [6] [7]
7/2	Mathematical Expectations/ Variance / Multivariate Distributions / Covariance / Quantification of Risk	Portfolio Risk / Application: Minimum Variance Asset Portfolio / Application: Diversification Principle / Systematic vs. Idiosyncratic Risk /Asset Prices	**PS #2**		[5]
7/7	Financial Markets and Uncertainty, Discounting, & Patience	Unconditional vs. Conditional Probability / Baye's Rule			[1] 4 [2] 3 [5] [6] Taleb Ch 11
7/9	Updating Information,	Decision Trees / The Value of	**PS #3**	**Midterm Exam**	[1] 4 [2] 3-5

	Signals, Information Structures, Quality of Information	Information / Perfect & Imperfect Signals / Optimal Precision when signals are costly		**Review (TBA)**	[3] 5 [4] 2.13.2 [5]
7/14	**MIDTERM EXAM**	Lotteries & Fair Gambles / The St. Petersburg Paradox / Bernoulli Utility Functions	**PS #4**		[1] 3, 5 [2] 4 [3] 1-3 [4] 2.9-10, 2.12, 2.14-2.17, 3 [5] [6] or [7]
7/16	Expected Utility / Risk Attitude / Measuring Aversion to Risk / Certainty Equivalent	Insurance Premiums / Asymmetric Information / Adverse Selection & Moral Hazard			[1] 9, 11-13 [2] 9 [3] 8, 10-11 [4] 4-6 [5] Gibbons
7/21	Uncertainty when Decisions are Interrelated / Strategic Interaction / Static Games & Dominance / Pure Strategies	Pure Strategy Nash Equilibrium / Nash Existence / Mixing	**PS #5**		[2] 9 [5] Gibbons Ch 1

7/23	Pure Strategy Equilibria in Continuous Static Games Sequential Games / Backwards Induction	Repeated Interaction / Finite vs. Infinite Horizon Problems	**PS #6**		[2] 9 [5] Gibbons Ch 2
7/28	Application: Auctions / Bidding Behavior / An Experiment	Information as a Good / Rivalry & Excludability / Optimal Production of Information	**PS #7**		[2] 6 [5]
7/30	Monopolistic Screening / Uniform Pricing / Discriminating with Perfect Information	Non-linear Pricing / Identification & Information Constraints / Menu Pricing	**Review**	**Final Review Friday Evening**	[1] 10 [2] 6 [5]
8/1	**FINAL EXAM (11:30am-2:30pm)**				