San José State University
Department of Economics
Econ 195—Computational Economics
Course No. 43046, Fall 2017

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Office Hours:	Th 12-1:30pm and by appointment.
Class Days/Time:	Tuesday and Thursday, 3:00-4:15P.M.
Classroom:	CCB 100
Prerequisites:	Economics 101 & 102. Econ 103 and 104 highly recommended.

MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on Canvas Leaning Management System course login website at http://sjsu.instructure.com. You are responsible for regularly checking with the messaging system through MySJSU at http://my.sjsu.edu to learn of any updates.

Course Description

The use of computerized laboratory experiments and agent-based modeling to test economic theory and human behavior.

Announcement

This is a four-unit course. You are expected to complete an average of 12 hours of work per week inclusive of lectures, assignments, and activities. This syllabus contains learning objectives, class meeting times, and assignments commensurate with the expectation of 12 hours of work per week across 16 weeks in a semester. For reference, under a traditional three-unit course, you were expected to complete 9 hours of work per week inclusive.

Course Learning Outcomes and Program Learning Objectives

This is a course in computational economics, and it emphasizes the use of computerized laboratory experiments and computer-based simulation to test human behavior in the context of economic theory. By the end of the course, students should be able to apply these methods to testing basic economic concepts, explain the pros and cons of each

method, and understand the economics implications of experimental and simulation results.

PLO3 *Research Methods*. Understand the costs and benefits of different methods of acquiring data for research. Apply these methods in an original research project.

PL0 4 *Quantitative Methods*. Use computer modeling to generate and analyze economic data.

PLO 5: *Communication*: Demonstrate efficient communication skills through research project presentations.

Upon successful completion of this course, students should be able to demonstrate the following:

CLO 1. Explain the use of laboratory experiments in economics, why they are used, and potential downfalls.

CLO 2. Design a basic laboratory experiment to test economic theory and behavior.

CLO 3. Explain the use of agent-based models in economics, why they are used, and potential downfalls.

CLO 4. Design a basic agent-based model, or significantly alter an existing model to test economic theory and behavior.

CLO 5. Discuss how computerized laboratory experiments and agent-based modeling are complimentary with each other, and with other economic research methods.

Texts/Readings

Required Textbooks

[FS] Daniel Friedman and Shyam Sunder, Experimental Methods: A Primer for Economists (Cambridge University Press, 1994); ISBN-13: 978-0521456821.

[WR] Uri Wilensky and William Rand, An Introduction to Agent-Based Modeling: Modeling Natural, Social, and Engineered Complex Systems with NetLogo (MIT Press 2015); ISBN-13: 978-0262731898.

Recommended Supplemental Texts

[FC] Daniel Friedman and Alessandra Cassar *Economics Lab: An Intensive Course in Experimental Economics* (Routledge, 2004); ISBN-13: 978-0415324021.

[JW] Joel Watson, Strategy: An Introduction to Game Theory (Viva Books, 2013); ISBN-13: 978-8130915999

Other Readings

Additional class readings will be available either via Canvas or online journals accessible through the SJSU library.

Assignments and Grading Policy

Grading in this course will substantially focus on research projects undertaken by students. All aspects of the project are considered in grading, including a research proposal, presentation, and final project deliverable. In addition, students are required to do a significant amount of reading, the completion of which will be tested through quizzes, class presentations of one reading and a midterm.

Grading Components:

- Class Participation (includes reading presentation): 15%
- Homework and Quizzes: 15%
- Midterm: 15%
- Written Research Proposal: 10%
- Research Project Presentation: 15%
- Final Research Project: 30%

Converting Number Grades to Letter Grades

97-100 A+	93-96 A	90-92 A-
87-89 B+	83-86 B	80-82 B-
77-79 C+	73-76 C	70-72 C-
67-69 D+	63-66 D	60-62 D-
below 60 F		

Final grades will be curved. However, the curve will never hurt your grade. I do not round up grades, e.g. an 86.9 is a B, not a B+.

Classroom Protocol

The use of cellphones for calls, texting, etc. is strictly prohibited. While you will be expected to bring a laptop or tablet to class, they are to be used for class purposes only. Those who violate this policy will have a half a percentage point deducted from their final grade for the course for *each infraction.*

This is an upper-division course, and a significant part of your grade is dependent on classroom participation. Therefore, you must come to class prepared, including (but not limited to) having done all of the readings.

I **do not** answer questions that can be quickly answered by referring to the syllabus.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/"

Econ 195: Computational Economics
Fall 2017: Course Schedule

Wk	Date	Topics, Readings, Assignments, Deadlines	Due
1	Th Aug 24	*Overview of Course & Introduction to Experimental Economics and ABM*	
2	Tu Aug 29	*Game Theory Part I*	
2	Th Aug 31	*Game Theory Part II*	
3	Tu Sep 05	*Game Theory Part III*	
3	Th Sep 07	*Competitive Markets and Auctions* Readings: Chamberlin 1948. Smith 1962. Thaler 1988.	
4	Tu Sep 12	*Competitive Markets and Auctions* Continued, Experiments Readings:	
4	Th Sep 14	*Experimental Methodology & Design* Readings: Croson 2003. FS pp 1-37	
5	Tu Sep 19	*Experimental Methodology and Design* Readings: Cassar and Friedman (Canvas) FS pp 38-84	
5	Th Sep 21	In-class Experiments	
6	Tu Sep 26	*Cooperation* Readings: Dawes and Thaler 1988. Dal Bo 2005.	
6	Th Sep 28	*Prospect Theory* Readings: Knetsch et al. 1991. Levitt and List 2008. Kuhberger 1995.	
7	Tu Oct 03	*Experimental Macroeconomics* Readings: Duffy 2008. pp 1-3. Duffy 2006.	

Wk	Date	Topics, Readings, Assignments, Deadlines	Due
		Rietz 2017. pp 1-4.	
7	Th Oct 05	In-class Experiment	
8	Tu Oct 10	Midterm	
8	Th Oct 12	*Introduction to ABM and Complexity* Readings: WR 1	
9	Tu Oct 17	*Introduction to ABM and Complexity* Readings: Lazer, et al. 2009 (Canvas) Vicsek 2002. Epstein 2009. Farmer and Foley 2009.	
9	Th Oct 19	*Introduction to NetLogo 1* Bring computer to class. Readings: Holland 1992. WR ch. 2.	
10	Tu Oct 24	*Introduction to NetLogo 2* Bring computer to class. Readings:	
10	Th Oct 26	*Introduction to NetLogo 3* Bring computer to class. Readings: WR ch 3.	
11	Tu Oct 31	*Designing an ABM* Bring computer to class. Readings: WR ch 4.	HW
11	Th Nov 02	*Designing an ABM* Bring computer to class. Readings: WR ch 5.	
12	Tu Nov 07	*Analyzing ABM results* Bring computer to class. Readings WR ch. 6.	Project ideas
12	Th Nov 09	*ABM Summary*	
13	Tu Nov 14	*What is a research proposal?*	

Wk	Date	Topics, Readings, Assignments, Deadlines	Due
		- Students make 1 minute research "pitch" - Form groups	
13	Th Nov 16	*Proposal Workshop* Meet with group, discuss ideas	
14	Tu Nov 21	*Experiments Redux*	
14	Th Nov 23	No Class – Thanksgiving Break	
15	Tu Nov 28	What is a research presentation?	
15	Th Nov 30	Project Working Group	
16	Tu Dec 05	*Presentations*	
16	Th Dec 07	*Presentations*	
	Dec 19	*Final*: 2:45pm-5:00pm Final Project due	←