

Term Information

Effective Term Spring 2017

General Information

Course Bulletin Listing/Subject Area Economics
Fiscal Unit/Academic Org Economics - D0722
College/Academic Group Arts and Sciences
Level/Career Graduate, Undergraduate
Course Number/Catalog 5870
Course Title Neuroeconomics and Decision Neuroscience
Transcript Abbreviation Neuroecon&Decision
Course Description In this course, we will focus on the psychology and neuroscience underlying economic behavior. Discussion will cover various domains of economic decision making and what Neuroeconomics has taught us about them.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week, 12 Week, 7 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites AEDE 2005, Stats 1450, Stats 2450, Psych 2220 OR Econ 3400 AND Math 1148 or higher AND Econ 4001.01, 4001.02, 4001.03, AEDE 4001, Psych 3313, Psych 3513 or Psych 4508.
Exclusions Not open to students with credit for Psych 5870.

Cross-Listings

Cross-Listings Cross-listed in Psychology

Subject/CIP Code

Subject/CIP Code 45.0601
Subsidy Level Doctoral Course
Intended Rank Junior, Senior, Masters, Doctoral

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Students will understand the basics of how the brain works, how these neural functions produce choice behavior, and the relationship between economic models and cognitive models.

Content Topic List

- Choice behavior
- Economic models
- Cognitive models
- Time discounting
- Social distribution

Attachments

- Neuroeconomics - Econ 5870 rationale.docx: Course Proposal
(Other Supporting Documentation. Owner: Ramirez, Ana G)
- Concurrence_Form_ECON5870 AEDE.pdf: AEDE Concurrence
(Concurrence. Owner: Ramirez, Ana G)
- Econ 5870 Concurrence_Form--Glenn College.pdf: JGC concurrence
(Concurrence. Owner: Vankeerbergen, Bernadette Chantal)
- Update Curriculum Map 8-11-2014.xlsx: BA & BA curriculum Map
(Other Supporting Documentation. Owner: Ramirez, Ana G)
- Concurrence Econ 5870 IntlStds.pdf: IntlStds
(Concurrence. Owner: Ramirez, Ana G)
- Concurrence Econ 5870 PubHlth.pdf: PubHlth
(Concurrence. Owner: Ramirez, Ana G)
- Econ-Psych 5870.doc: Econ-Psych 5870 Syllabus
(Syllabus. Owner: Ramirez, Ana G)
- Concurrence List Econ 5870.docx: Concurrence list
(Concurrence. Owner: Ramirez, Ana G)

Comments

- 07/27: Returned per Ana's request.

07/27: Sent back per Ana's request.

A Reminder: ASC curricular committees do not meet over the summer, so this course will be reviewed for the 1st time in AU16. *(by Haddad, Deborah Moore on 07/27/2016 11:12 AM)*

- Sent back per A Ramirez's request *(by Vankeerbergen, Bernadette Chantal on 07/26/2016 05:07 PM)*
- New course syllabus and concurrence list added *(by Ramirez, Ana G on 07/21/2016 01:13 PM)*

COURSE REQUEST
5870 - Status: PENDING

Last Updated: Vankeerbergen, Bernadette
Chantal
08/23/2016

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Ramirez, Ana G	07/07/2016 10:23 AM	Submitted for Approval
Approved	Logan, Trevon D'Marcus	07/07/2016 10:33 AM	Unit Approval
Approved	Haddad, Deborah Moore	07/07/2016 01:46 PM	College Approval
Revision Requested	Vankeerbergen, Bernadette Chantal	07/19/2016 10:19 AM	ASCCAO Approval
Submitted	Ramirez, Ana G	07/21/2016 01:13 PM	Submitted for Approval
Approved	Logan, Trevon D'Marcus	07/21/2016 01:37 PM	Unit Approval
Approved	Haddad, Deborah Moore	07/21/2016 03:18 PM	College Approval
Revision Requested	Vankeerbergen, Bernadette Chantal	07/26/2016 05:07 PM	ASCCAO Approval
Submitted	Logan, Trevon D'Marcus	07/26/2016 05:25 PM	Submitted for Approval
Approved	Logan, Trevon D'Marcus	07/26/2016 05:25 PM	Unit Approval
Revision Requested	Haddad, Deborah Moore	07/27/2016 08:55 AM	College Approval
Submitted	Logan, Trevon D'Marcus	07/27/2016 08:57 AM	Submitted for Approval
Approved	Logan, Trevon D'Marcus	07/27/2016 08:58 AM	Unit Approval
Revision Requested	Haddad, Deborah Moore	07/27/2016 11:12 AM	College Approval
Submitted	Ramirez, Ana G	07/27/2016 11:45 AM	Submitted for Approval
Approved	Ramirez, Ana G	07/27/2016 11:52 AM	Unit Approval
Approved	Haddad, Deborah Moore	07/27/2016 12:18 PM	College Approval
Pending Approval	Nolen, Dawn Vankeerbergen, Bernadette Chantal Hanlin, Deborah Kay Jenkins, Mary Ellen Bigler Hogle, Danielle Nicole	07/27/2016 12:18 PM	ASCCAO Approval

Neuroeconomics (Econ/Psych 5870)

Spring 2017

Syllabus

Instructor: Ian Krajbich
Office: Arps Hall, room 415 or Lazenby Hall, room 200E
E-mail: krajbich.1@osu.edu
Phone: 614-688-2136
Mailbox: Arps Hall, room 410 or outside of Lazenby 214
Office hours: By appointment

Teaching Assistants:
Office:
E-mail:
Mailbox:
Office hours:

Faculty Assistant:
Office:
Email:
Phone:

Class meetings: Tuesday and Thursday, 80 minutes
Arps Hall, Room XXX

Format of instruction: Lectures with 3 hours of contact per week

Course description

In this course, we will focus on the psychology and neuroscience underlying economic behavior. We will start with a brief “crash course” in neuroscience basics, then go on to cover various domains of economic decision making and what Neuroeconomics has taught us about them. Topics will include decisions about risk, time discounting, social distribution, strategy in games, and learning. By the end of the course, students should understand the basics of how the brain works, how these neural functions produce choice behavior, and the relationship between classic economic models and models of how the brain works.

Prerequisites

This course is designed for undergraduates with some exposure to economic theory, decision making, or neuroscience. Prerequisites include: (Stats 1450 or Stats 2450 or Psych 2220 or Econ 3400) AND (Math 1148 or higher) AND (Econ 4001 or Psych 4508 or Psych 3313 or Psych 3513).

Required Textbook and Readings

- Glimcher, P.W., Fehr, E. (2014). *Neuroeconomics: Decision Making and the Brain* (2nd ed.). Academic Press.

- Additional reading materials will be posted to Carmen as PDF files on a regular basis.
- Exams **will** contain questions from the readings, even if that material is not explicitly covered in class.

Grading Policies

The Big Picture

- Grades will be determined on the basis of the following components:

Exam 1	25% (could be 20%, 25%, or 30%; see below)
Exam 2	25% (could be 20%, 25%, or 30%; see below)
Exam 3	25% (could be 20%, 25%, or 30%; see below)
Problem sets	20%
In-class pop quizzes	8% (5% + up to 3% bonus; see below)
- Grades for all components of the course will be converted to percentages and averaged using the weights given above. Your final grade will be computed using the scale below.

E	D	D+	C-	C	C+	B-	B	B+	A-	A
<60%	≥60%	≥67%	≥70%	≥73%	≥77%	≥80%	≥83%	≥87%	≥90%	≥93%

Exams

- Exams will be in class, closed book, and closed notes. Questions will probably be a mix of multiple-choice, short-answer, and discussion. Some calculations will be required, so bring a calculator (but not a cell phone or a laptop).
- In problems that require calculations, you must show your work and/or clearly explain what you did to get your answer. Just writing down your final answer is insufficient, even if your answer is correct. (This rule does not apply to multiple choice questions.)
- The second and third exams will focus on material covered in the relevant parts of the course, so they will not be a “cumulative” by design. However, they will be at least somewhat cumulative by necessity (i.e., you shouldn’t forget earlier material).
- I am happy to consider written requests for re-grades, if those requests are received within one week of my returning the graded exam. I will re-grade only that portion of the exam specified in the written request. It is possible for re-grading to lead to a lower grade rather than a higher grade.
- Your best exam grade (in percentage terms) will be weighted 30% and your worst exam grade will be weighted 20%. The other exam will be weighted 25%. These weights will be determined separately for each student at the end of the semester. The total is 75% no matter how you slice it. This policy is intended to take a bit of the sting out of one poor performance, but it won’t do much for a string of low scores.

Homework Assignments

- There will be about six written problem sets during the course. These are intended as practice and will often involve calculations. They will usually be handed out during one class period and be due at the beginning of class 5 or 7 days later. Occasionally, a problem set may include some material that is covered only 2 days before the due date.
- Collaboration on problem sets is encouraged.

- Problem sets will be graded on a 0–2 “good effort” scale, where 0 = missing, 1 = handed in but unsatisfactory, and 2 = satisfactory. If you don’t make a serious effort, you can expect a grade lower than 2.
- Your lowest grade on these problem sets will be dropped, but late problem sets will not be accepted. If you miss a problem set for a legitimate reason, just count that one as your drop grade.

In-Class Pop Quizzes

- There will be several in-class pop quizzes during the semester. I don’t know the exact number, but an average of one every two or three lectures would be a good guess. The final number of quizzes may be higher or lower than the number of quizzes currently listed on Carmen.
- Quizzes will not be announced ahead of time. If you ask me if I’m planning to give a quiz on a particular day, I will not tell you.
- Quizzes may be given at any time during the lecture (beginning, middle, or end). They may cover material from that day, material from the previous lecture, or both.
- You must be present to take the quiz. There are no make-ups.
- The quizzes are intended to be straightforward, but not trivial. If you are present and paying attention you should get most of the answers correct.
- The quizzes will count as 8% of your grade. The first 5% is like any other component of your grade. Anything more than that is bonus. So in principle, you can get 103% in the course. But if you miss all of the quizzes, the best you can do is 95%.
- Among other things, the bonus is intended to make the “no make-ups” policy reasonable. If you miss one or two quizzes, even for legitimate reasons, don’t worry about it.
- If you are philosophically opposed to pop quizzes and want no part of this nonsense, send me an email before the start of class on the date of Exam 1 saying that you do not want the pop quizzes to be part of your grade. If you send me such an email, I will compute your grade on the basis of the other 95% of the course and scale your grade up from 95% to 100% by dividing your average by 0.95 (really, it works). If you opt out of the pop quizzes, then none of them will count and you will not be eligible for the 3% extra credit. The decision to opt out of the quizzes is irreversible (i.e., you can’t opt back in later).

Exceptions Due to Legitimate Illness, Injury, or Serious Emergency

Students missing an exam or other deadline because of legitimate illness, injury, or serious emergency must do both of the following things:

1. Contact me in person or by email **before** the exam or deadline.
2. Provide written documentation of your illness, injury, or emergency from an authoritative source (e.g., a physician’s note, a police report, a funeral announcement).

Remedial actions (if any) are at my discretion. Make-up exams and deadline extensions are not guaranteed, even if both of the above actions are taken. Make-up exams typically involve different questions and problems than those on the original exam.

Sleeping through an exam is not considered a legitimate excuse.

No make-ups will be offered for missed pop quizzes (the bonus is intended to provide a bit of a cushion in such cases). You do not need to contact me to say that you will be missing a quiz if there is one. My standard response to your missing a homework assignment will be that you can count that one as your drop grade.

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

Students with Disabilities

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>. To ensure fairness to all students, requests for special accommodations will not be granted in the absence of ODS certification.

Tentative Course Outline

Note: This schedule is subject to change.

Week	Date	Topic and Event	Reading
1	Aug 28	Overview of Course	
2	Sep 2	Normative economics	G&F 1
	Sep 4	Experimental economics	G&F 2
3	Sep 9	Computational models	G&F 3
	Sep 11	Testing computational models	G&F 4
4	Sep 16	Introduction to neuroscience	G&F 5
	Sep 18	Methods from cognitive neuroscience	G&F 6
5	Sep 23	Evolutionary insights	G&F 7
	Sep 25	Simple choice	G&F 8
6	Sep 30	<i>Exam 1</i>	
	Oct 2	Risk & Uncertainty	G&F 9
7	Oct 7	Prospect theory	G&F Appendix
	Oct 9	Intertemporal choice and self-control	G&F 10
8	Oct 14	Social preferences	G&F 11
	Oct 16	Social preferences (continued)	
9	Oct 21	Multi-stage valuation	G&F 13
	Oct 23	Pharmacology and decision making	G&F 14
10	Oct 28	Reinforcement learning	G&F 15
	Oct 30	Model-based vs. model-free learning	G&F 21
11	Nov 4	<i>Exam 2</i>	
	Nov 6	Experienced vs. decision utility	G&F 18
12	Nov 11	<i>Veteran's Day</i>	
	Nov 13	Models of perception	G&F 19
13	Nov 18	Applications of perception to economics	G&F 20
	Nov 20	Integrating benefits & costs	G&F 22
14	Nov 25	Context-dependence	G&F 24
	Nov 27	<i>Thanksgiving</i>	
15	Dec 2	Strategic choice & game theory	G&F 25
	Dec 4	Strategic choice in primates	G&F 26
16	Dec 9	Theory of mind	G&F 27
Finals	Dec 15	<i>Exam 3</i> Oneday, XX:XX-YY:YY	

Neuroeconomics (Econ 5870) New Course Proposal

Rationale

The Department of Economics does not currently offer an undergraduate course that merges economics with the studies of psychology and neuroscience with economics theory. Econ 5870 is designed to teach students about the neuroscience behind economic decision making. When offered as a group studies course in AU2015, students rate the content as highly intellectually stimulating. The course proposed by Professor Ian Krajbich will provide a richer curriculum for students in our major and supplement the knowledge for students in other area of study.

Course objectives

This course will cover various domains of economic decision making and what Neuroeconomics has taught us about them. Topics will include decisions about risk, time discounting, social distribution, strategy in games, and learning. By the end of the course, students should understand the basics of how the brain works, how these neural functions produce choice behavior, and the relationship between economic models and cognitive models.

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Relationship to other Courses/Curricula

Econ 5870 will improve the undergraduate curriculum by providing students a wider selection of course offerings that applies the economic knowledge and skills learned in intermediate level courses to a specific area of neuroscience. Neuroeconomics exposes students to different research methodologies used in the social sciences and healthcare related fields.

Concurrence List Econ 5870

Department responding by July 25 concurrence deadline.

Kynthia Droesch (.4)
College of Public Health
Director of Academic Program and Student Services

Tim Hadd (.1)
Chair AEDE
Brian Roe (.30)
Undergraduate Program Leader
AEDE

John Bronu (.1)
Chair Psychology
College of the Arts and Sciences

Tony Mughan (.1)
Karlene Foster (.24)
International Studies
College of Arts and Sciences

Trevon Brown (.2296)
Associate Director of Academic Affairs
John Glenn School of Public Affairs

Departments not responding by July 25th concurrence deadline are list below. No response is assumed to indicate no objection to new course offering and defacto concurrence.

Richard Herrmann (.1)
Chair Political Science
College of Arts & Sciences

Claudia Buchmann (.4)
Chair Sociology
College of Arts & Sciences

Patricia West (.284)
Associate Dean of Undergraduate Program
Jill O'Neill (.139)
Director Administrative Services
FCOB