Syllabus

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Lectures: TR 12:30-01:45PM
RBN 2011

Hours: TBD

1 Description

This course provides an introduction to game theory -- the study of strategic situations -- and its applications. The course will cover the basic analysis of simultaneous and sequential move games with perfect information. In addition, this material will be followed by a number of applications which illustrate how the use of game theory can help us to improve our understanding of strategic behavior in economic, political, and social situations.

Learning Outcomes: At the completion of this course,

i. The students will be familiar with the basic analysis of strategic situations.

ii. The students will have a better understanding of a number of strategic situations frequently observed in economic, political, and social situations.

The students will learn the material in this course by attending lectures, reading the textbook, and completing a number of problem sets and writing assignments. The comprehension of the material will be measured by the performance of the students on examinations and on the problem sets and writing assignments.

Program Outcomes: The material in this course contributes to the following program outcomes:

i. The students will be able to demonstrate a working knowledge of the basic principles and analytical techniques used in microeconomic analysis.

2 Prerequisites

The only formal academic prerequisite for this course is a course in introductory microeconomics. A course in calculus and probability and statistics would be helpful, but is not required.
a. Textbook

The required textbook for the class is Dixit, Reiley, and Skeath (2009): *Games of Strategy 3e* (Norton). This book will be our main reference for the material in game theory and many of the applications. In addition, you will read a number of supplementary articles which contain additional applications of the theory.

b. Mathematics

The study of game theory is considerably technical and makes extensive use of mathematics, but this course will be relatively non-technical. I believe you can obtain the intuition from a simple model and understand the results can be extended to more general formulations. Therefore, only basic knowledge of algebra and elementary calculus is required, which I will review in class as necessary.

### 3 Structure of the course

I will dedicate as much time to the course as necessary. The material in the course is closely related to my teaching and research interests and I intend to make this course a fun and productive experience for you.

a. Lectures

Research in Psychology has demonstrated that a central element in the learning process is active participation by the learner. I understand lectures can promote passive observation rather than active participation. Therefore, to promote active participation, my lectures will generally include:

i. Presentation of technical material in which students participate in the derivation of the results,

ii. Discussion of the results and implications for the real world, and

iii. The opportunity for students to work in teams on practice problems or in informal experiments.

The lectures will be more fun and productive if you have read the material ahead of time and come to class prepared to contribute to the discussion.

b. Grades

To measure your performance in the course and determine your grade, you are required to attend and participate in class, complete a number of homework activities and examinations, and write a research paper.

i. Examinations

There will be a MIDTERM and a FINAL examination. Your performance on each examination will determine 30% of your grade. The exams will consist of problems similar to the ones presented in class or in the homework.
There will be no make-up examinations. Therefore, if you cannot take the MIDTERM examination, contact me as soon as possible. You may obtain an excused absence, but then the FINAL examination will determine a larger percentage of your grade. You must take the FINAL examination on the date scheduled by the university. Therefore, look up the date and mark your calendars accordingly.

ii. Homework

There will be a number of homework activities during the semester. Your performance in the homework will determine 30% of your grade. The homework will consist mainly of (i) practice problems and (ii) essays where you summarize or discuss the material covered in the supplementary readings.

iii. Attendance

Attendance and participation will determine 10% of your grade. You are required to attend and participate in class because attendance and participation are essential if you want to do well in this class. For instance, it is important for you to come to class because I will cover material not contained in the textbook but that I will include in the homework and examinations. Finally, if you have to miss class, make sure you talk to other students about the material you missed.

4 Outline

This section describes the material we will cover in the course and the approximate dates. I expect you to read the material ahead of time and to come to class prepared to contribute to the discussion.

A PRELIMINARIES

1. Introduction

2. Rationality and Decision Theory

   DATE: Week 1
   READ: Chapter 1, 2

B GAME THEORY I: COMPLETE INFORMATION

1. Games with simultaneous moves

   i. Introduction

   DATE: Week 2
   READ: Chapter 4
ii. NASH equilibrium

DATE: Week 3, 4
READ: Chapter 5

iii. Mixed strategy NASH equilibrium

DATE: Week 5
READ: Chapter 7

2. Games with sequential moves

DATE: Week 6
READ: Chapter 3

3. Games with sequential and simultaneous moves

DATE: Week 7
READ: Chapter 6

MIDTERM EXAM

C APPLICATIONS

1. Strategic moves

DATE: Week 8
READ: Chapter 10

2. Collective Action

DATE: Week 9
READ: Chapter 12

3. Incentives in Organizations

DATE: Week 10
READ:

4. Political Economy

DATE: Week 11
READ: Chapter 15

5. Repeated Games and Cooperation

DATE: Week 12
READ: Chapter 11

D GAME THEORY II: INCOMPLETE INFORMATION
1. Normal Form Games with Incomplete Information

   DATE:   Week 13  
   READ:   Chapter 16

2. Extensive Form Games with Incomplete Information

   DATE:   Week 14  
   READ:   Chapter 9

E EXTENSIONS

1. Bargaining

   DATE:   Week 15  
   READ:   Chapter 17

2. Evolutionary Game Theory

   DATE:   Week 15  
   READ:   Chapter 13

FINAL EXAM

SUPPLEMENTARY READINGS


UNIVERSITY POLICIES

This section contains a number of university policies which you should be familiar with. Follow the links for additional information.

**Students Rights and Responsibilities**
To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link:
http://www2.rettyler.edu/wellness/rightsresponsibilities.php

**Grade Replacement/Forgiveness and Census Date Policies**
Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at http://www.rettyler.edu/registrar. Each semester’s Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar. Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date is the deadline for many forms and enrollment actions that students need to be aware of. These include:
- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a “W” grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

**State-Mandated Course Drop Policy**
Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date). Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

**Disability Services**
In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University offers accommodations to students with learning, physical and/or psychiatric disabilities. If
you have a disability, including non-visible disabilities such as chronic diseases, learning disabilities, head injury, PTSD or ADHD, or you have a history of modifications or accommodations in a previous educational environment you are encouraged to contact the Student Accessibility and Resources office and schedule an interview with the Accessibility Case Manager/ADA Coordinator, Cynthia Lowery Staples. If you are unsure if the above criteria apply to you, but have questions or concerns please contact the SAR office. For more information or to set up an appointment please visit the SAR office located in the University Center, Room 3150 or call 903.566.7079. You may also send an email to cstaples@uttyler.edu

Student Absence due to Religious Observance
Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

Student Absence for University-Sponsored Events and Activities
If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement:
It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

Emergency Exits and Evacuation:
Everyone is required to exit the building when a fire alarm goes off. Follow your instructor’s directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.