Econ 4400: Strategy and Information

Dr. Jesse Bull
Office: DM 319C
Office Hours: T TH 11:15am to 12:15pm
Email: bullj@fiu.edu
Phone: 305-348-3893

Lecture: T TH 2:00pm – 3:15pm, DM 110, Fall 2019.

Teaching Assistant:
TBA
Email:
Office Hours: TBA

Course Objectives: This course will focus on game theory, which is a way to model and predict behavior in a strategic situation. A strategic situation is one in which the actions of one person influence the payoff of another. You will encounter many such situations in most facets of life. So the skills you learn here will be helpful in many situations. Conceptual and fundamental understanding will be emphasized.

How to do Well: I believe the concepts we will cover in this course are very useful for many situations you will face in your career (regardless of your career) and want each of you to learn these. The ways in which we will approach problems will require the development of your intuition and mathematical problem solving skills. The best way to do this and to learn the material is to do practice problems. I will suggest problems from the text, provide previous exams (with solutions), and do many problems during class. Further, I will assign some problems for graded homework. Spending some time on this course each week is critical to your doing well. Starting early on the homework assignments and the paper will be helpful.

Grading: Grades are based on the homework (10% each, 30% total), exams with each midterm counting 20% and the final exam counting 30%.

Examinations: There will be two midterm examinations (in class on September 26th, and October 31st), and a cumulative final exam (at the University-scheduled time and date).

Homework Assignments: There will be three graded homework assignments. There will be one corresponding to material for each exam. There will be numerous other
suggested problems. The homework problems are intended to give you an opportunity to attempt some questions for which you do not have the solution. We will go through the graded problems in class and/or I will provide solutions. Often there will be opportunity for one of you to show your classmates how you attempted a problem.

In addition to these problems, I will suggest some problems from the text for you to work on. Solutions to some of the odd numbered questions are in the back of the text. So you will have a lot of opportunity to check your answers. Further, I will provide many exams, with solutions, from previous semesters.

I encourage you to begin working on problems early in the semester (and following each exam) as this is the best way to learn the abstract concepts we will cover. Further, it is the best practice for the exams.

**Learning Outcomes:** By the end of this course you will be able to represent many economic situations, in which the parties behave strategically, with basic games and solve for the parties’ equilibrium behavior in those situations. You will be able to analyze static and dynamic games of complete information. Specifically, you will be able to use, where appropriate, dominance, rationalizability, Nash equilibrium, and subgame perfection to predict behavior in games. Additionally, you will be able to analyze static and dynamic games of incomplete information using Bayes-Nash equilibrium and perfect Bayesian equilibrium. You will be able to apply the solution concepts that you have learned to several introductory contracting problems, which include signaling, adverse selection, and the principal-agent problem.


**Administrative Issues:**

1. If you have a documented disability, please bring your documentation and come to talk to me as soon as possible so that I can make suitable accommodations for you. If you believe that you have a disability and desire accommodation, please register with the Disability Resource Center, GC 190 as soon as possible. For information on the steps for academic accommodation, please see http://drc.fiu.edu/.

2. Any student found guilty of academic misconduct will earn a grade of an F for the course. In addition to this academic sanction that I will impose, the Academic Integrity Office will be asked to also impose a disciplinary penalty. This will follow University procedures. Please see http://integrity.fiu.edu and the Student Handbook for more information.

3. You will only need a pen or pencil for exams. Exams are closed book and you may not use notes. Exams are completely electronic-free: no calculators, headphones, cell phones, ipods, etc. are to be used during an exam.
4. If you arrive late to an exam, I will allow you to take the exam in the time that remains as long as no one has turned in his/her exam and left the room. If a classmate has already turned in his/her exam and you arrive late, you will earn a zero on the test.

5. Any request for a regrade of an exam must be made within one week of the exam being returned. If there is a mistake adding up the points on your exam and it is brought to my attention within one week of the exam being returned, I will correct it. However, if you believe an exam has not been graded properly and you request a regrade within one week of the exam being returned, I will regrade your entire exam. The regraded score will be your grade for the exam. You may not ask for another regrade or go back to your first grade.

To request a regrade, you must write a brief explanation (on a separate sheet of paper) that states which problem you believe was incorrectly graded, describes the part of your answer you believe warrants additional points, and is signed (and dated) by you. You may not ask for a regrade of your exam if you have added to or changed any answer on your exam.

6. There will be no makeup exams. If you have to miss a midterm for a medical or other University-approved reason, the weight will be allocated to the final exam. In that case, you will need to provide proof of your situation. The weights will not be reallocated for any other reason.
Topics

1. Representing Games
   (a) Introduction, extensive form, strategies
   (b) Normal form, beliefs, and mixed strategies

2. Analysis of Static Settings
   (a) Best response, rationalizability, applications
   (b) Equilibrium, applications \textbf{Midterm 1:} \approx \text{chapters 1 to 10}
   (c) Other equilibrium topics
   (d) Contract, law, and enforcement

3. Analysis of Dynamic Settings
   (a) Extensive form, backward induction, and subgame perfection
   (b) Repeated games, applications \textbf{Midterm 2:} \approx \text{chapters 11 to 23, excluding chapters 17 to 21}

4. Information
   (a) Random events and incomplete information
   (b) Risk and contracting
   (c) Bayesian equilibrium
   (d) Agency
   (e) Perfect Bayesian equilibrium and applications
   (f) Signaling \textbf{Midterm 3:} \approx \text{chapters 24 to 29}