Syllabus

Economics 405
Game Theory
Liberal Arts 302

Instructor: Amanda Dawsey	TA: Mikayla Eager
Office: LA 408A	Office: LA 409
Office hours: MWF 10 – 11 AM	Office hours: TuTh 2 – 4 PM

Class Description and Learning Objectives:

Economics 405 is an introduction to the tools of game theory and how they may be applied. In many situations, an individual's choices will affect another's welfare and vice versa. Game theory is a method of analyzing situations where decisions are interrelated and each agent recognizes this fact and makes decisions strategically. Our primary focus will be on competitive games of perfect information, and we will examine games with less-than-perfect information as time permits. During this course, you will learn the following:

1. How to read and interpret a game matrix and how to diagram a static strategic problem using a game matrix.
2. Under what conditions a Nash equilibrium exists.
3. The definition and use of mixed strategies.
4. How to read and interpret a game tree, and how to diagram a dynamic strategic problem using a game tree.
5. What equilibrium concepts are appropriate for different types of games (static vs. dynamic, perfect vs. imperfect information), and how to identify these equilibria.

Practical Issues:

1. TEXTBOOK: **You must have access to moodle to fully participate in this class.** I also recommend you purchase the textbook:

   Games, Strategies, and Decision Making, by Joseph E. Harrington, Jr.

2. CLASSROOM ENVIRONMENT:

If you miss a class, it is your responsibility to get any notes, announcements, or assignments from your classmates. I will send class information to your university email address. You will need to either check this account regularly or set up message forwarding to your preferred email address.
This course is accessible to and usable by otherwise qualified students with disabilities. Talk to me if you'd like to request reasonable program modification. For more information, visit the Disability Services website at http://www.umt.edu/dss.

3. GRADING:

Your final grade will be based on your performance on problem sets and exams. There will be four exams during the semester, plus an exam given during final exam week.

Problem Sets	10%
Exam 1 (September 18)	18%
Exam 2 (October 9)	18%
Exam 3 (October 30)	18%
Exam 4 (November 20)	18%
Exam 5 (Dec 11, 8 – 10 AM)	18%

I expect you to know and abide by the Student Conduct Code in all matters pertaining to this course. Violations of this code will be pursued in accordance with the code.

Exam policy.
Make sure you don't have a conflict with the exam dates above. The final will be comprehensive. You will be allowed to take a make-up exam only if (1) you have a valid university excuse for missing the exam and (2) you show me evidence of your excuse (a doctor's note, for example) as soon as you are able.

Problem sets:
There will be four graded problem sets. These exercises are intended to allow you to practice using the skills discussed in the textbook and in class and to familiarize you with the types of questions that will be on exams.

Tentative Course Schedule: The material we cover is subject to change, but problem set due dates and exam dates will not change.

Week	Date	Topic	Reading	Quiz/Test
1	Aug 26 – 30	Introduction, math review and notation	Chapter 1	
2	Sept 2 - 6	**No Class Monday**		
3	Sept 9 – 13	Normal form games: strategies and payoffs	Chapter 2	PS 1 Due Sept 13
4	Sept 16 – 20	Dominance and best response	Chapter 3	**Exam 1** Sept 18
5	Sept 23 – 27	Nash Equilibria	Chapters 4 & 5	
6	Sept 30 – Oct 4	Applications, oligopoly	Chapter 6	PS 2 Due Oct 4
7	Oct 7 – 11	Mixed strategy equilibria	Chapter 7	**Exam 2** Oct 9
8	Oct 14 – 18			
9	Oct 21 – 25	Dynamic games	Chapter 8	PS 3 Due Oct 25
10	Oct 28 – Nov 1	Backward induction and subgame perfection	Chapter 13	**Exam 3** Oct 30
11	Nov 4 - 8	Repeated games	Chapter 14	
12	Nov 11 – 15	**No Class Monday**		PS 4 Due Nov 15
13	Nov 18 – 22	Collusion in repeated games		**Exam 4** Nov 20
14	Nov 25 – 29	**No Class Wednesday or Friday**		
15	Dec 2 - 6	Imperfect Information	Chapters 9 & 10	
	Wednesday, Dec 11	**Exam 5:** 8 – 10 AM		