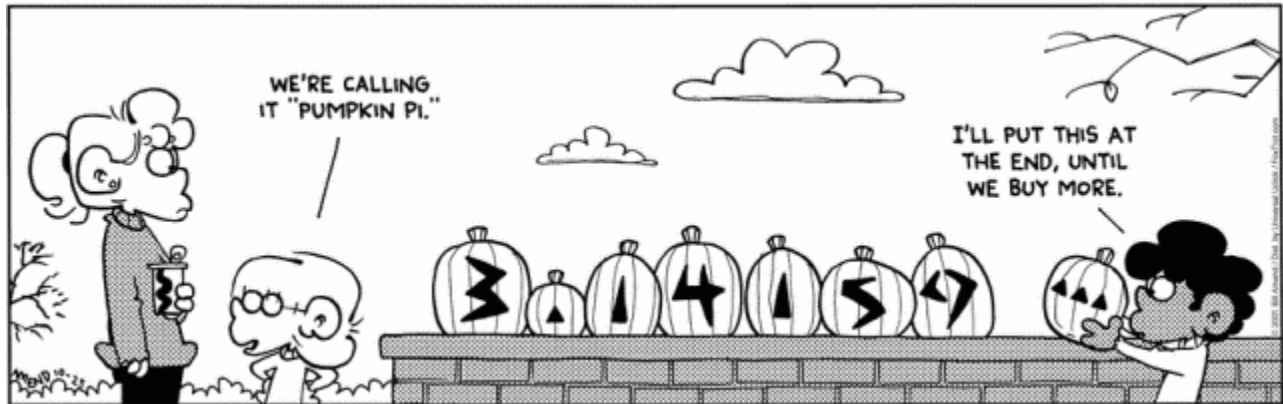


SPRING 2019

Hillsdale College

ECO/MTH 375 Game Theory



Class location: D-113

Class time: MWF: 10:00-10:50 AM

Instructor: Kevin Gerstle

Office: D-109

E-mail: kgerstle@hillsdale.edu

Office hours: M: 11:00-11:45am, 2:00-3:00pm

T: 10:00am-11:30am, 1:30-2:30pm

W: 11:00-11:45am, 2:00-3:00pm

Th: 1:30-2:30pm

Course Description:

Game theory is the study of the interaction of rational decision makers. This course uses game theory to study incentives and strategic behavior in practical situations of interdependent decision-making and negotiations. The course will develop basic theoretical concepts in tandem with applications from a variety of areas, including bargaining, competition, and strategic voting.

Requirements:

MTH 310 or MTH 320 or instructor consent

Textbook:

Games and Information: An Introduction to Game Theory, 4th ed., Eric Rasmusen, Blackwell Publishing, 2007.

Homework will be assigned weekly from this book.

Blackboard and E-mail:

Class announcements, due dates, and information pertaining to homework, quizzes, and tests will be posted regularly on Blackboard. I expect students to check Blackboard daily.

Students should check their Hillsdale e-mail addresses on a daily basis for communications from the instructor. In addition, e-mail should be used to ask questions or schedule appointments outside of the set office hour times. I will respond to e-mails within 24 hours of receipt excepting on weekends.

Calculation of Final Grade:

Homework: 10%

Quiz Points (QP): 20%

Midterm 1: 25%

Midterm 2: 25%

Final Exam: 20%

Grading System:

Grades will be assigned based on the following scale:

Letter	A	A-	B+	B	B-	C+	C	C-	D	F
Points	4.00	3.67	3.33	3.00	2.67	2.33	2.00	1.67	1.00	0.00
%	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	60-69	0-59

Quiz Points (QP):

Short quizzes (~10 minutes) will be given in class once each week (none during exam weeks) on Fridays. Each quiz will be graded out of 10 points. If you receive at least 100 quiz points (QP) by the end of the semester, you will receive full credit for this portion of your grade. For each QP you earn beyond 100 points, you will earn a bonus 0.1% towards your overall final grade. You may not use any notes or electronic devices during a quiz, and you may not discuss the quiz with anyone other than the professor.

Note there will be other opportunities to earn quiz points throughout the semester by attending and writing reflections on math-related talks. These opportunities will be announced ahead of time to the class throughout the semester.

Exams:

There will be two midterm exams and a cumulative final exam. The two midterms will each consist of an *in-class exam* and a *take-home exam*. Each take-home exam will be given immediately following the corresponding in-class exam. These two exams will be equally weighted. In-class exams will consist of short questions and computations based on definitions and known results. Take-home exams will

consist of more open-ended questions and challenging computations. The final exam will consist only of an in-class exam.

For the in-class exams, you are not allowed to use any notes or discuss the exam with anyone else but the professor. *You may not use calculators or any electronic devices on in-class exams.*

For the take-home exams, you may use your notes, the course textbook, and a calculator but no other written/electronic resources. You may work either alone or with *one* partner, but your write-up must be your own. You may discuss take-home exams only with the professor and your partner.

Midterm exams will not be comprehensive; however, earlier material may be required in order to understand the current material. The final exam *will* be comprehensive.

***For both exams and homework problems, you are expected to show your work. Answers with no explanation may not receive any credit.*

***Make-up exams will be given only under exceptional circumstances (e.g. illness, religious obligations, certain college activities, or unavoidable circumstances). Make-up quizzes will generally not be given unless made up ahead of time. Please see me as soon as possible if you know you are going to miss a quiz or exam.*

Homework:

Homework sets will be assigned weekly. Each assignment will consist of problems coming from the textbook; on occasion, I may write questions myself as well.

Each assignment will be graded for completion (ie: if it looks you made a *strong* effort at each problem). **Make sure to show your work and explain your thoughts carefully on each assignment;** I reserve the right to award no points to problems, even those with correct answers, without any work to back them up. If you are unsure how to solve a problem, write your thoughts or what strategies you tried to use.

Homeworks that are not stapled or are missing names will NOT be accepted. I also expect you to write your name and class at the top of each homework. Finally, I additionally expect you to write out responses neatly and when possible in complete sentences. If problems on the written homework are not written as such, they may not be graded.

For any/all homework assignments, I highly encourage you to work with your classmates outside of class time. In my experience, having a small study group that meets regularly can make a big difference in understanding. However, your final write-ups of problems must be your own; it is an Honor Code violation to present someone else's written work as your own.

Participation:

Participation is an important part of this class; without coming to class, asking/answering questions, taking part in class conversations, and engaging in class activities, you will not be able to fully succeed

in this course.

If you know you will have to miss class, you should let me know **ahead of time** if possible so I can take this into account in preparing each class.

Other Expectations of Student Performance:

I expect that you will behave with respect to the other students in the class and to me. In particular, this means turning off or silencing your cell phone. You should not be sending text messages or listening to audio devices during class. Those who are disruptive to the class will be asked to leave. Computers may be used to help with note-taking.

Beyond myself, I encourage you to use your classmates as a resource. In my experience, working with peers is an extremely valuable way to study and learn mathematics.

Disabilities:

The college will make reasonable accommodations for persons with disabilities. If you feel you need accommodations, you should notify me within the first two weeks of class.

Important Dates:

- **Wednesday, January 16:** First day of classes
- **Friday, February 1:** Last day to drop course as a cancel
- **Friday, February 22:** Midterm 1 in-class exam
- **Wednesday, February 27:** Midterm 1 take-home exam due
- **Friday, March 1:** Last day to drop course with a W
- **Saturday, March 9 – Sunday, March 17:** Spring break (no class)
- **Friday, April 5:** Midterm 2 in-class exam
- **Wednesday, April 10:** Midterm 2 take-home exam due
- **Friday, April 19:** Good Friday (no class)
- **Monday, April 22:** Post-Easter travel day (no class)
- **Tuesday, April 30:** Last day of classes
- **Tuesday, May 7:** FINAL EXAM (8:00-10:00am)