

Math 4370  
MW 3:00–4:20  
LART 122

**GAME THEORY**  
**Syllabus**

Fall 2005  
Sec. 19175

**Instructor: Dr. Art Duval**

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phone: **747-6846**/office (24hrs./day; if I'm not in, please leave a message)  
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<http://www.math.utep.edu/Faculty/duval/home.html>

Office hours: **Mon, Wed, 10–11; Tue, Thu, 1–2**. Please feel free to come by my office any time during scheduled office hours. You are welcome to come at other times, but in that case you might want to make an appointment, just to make sure that I will be there then. You can make an appointment simply by talking to me before or after class, by calling me at my office or at home, or by sending e-mail.

You may also ask any questions directly via phone or e-mail. If I'm not in when you call, please leave a message on the voice-mail or answering machine with your name, number, and a good time for me to call you back. I will try to respond to your phone or e-mail message as soon as possible.

Website: <http://www.math.utep.edu/Faculty/duval/class/4370/054/home.html>

Here you will find this syllabus, and relevant links, including homework and reading assignments for the whole semester, as they are announced. Other resources may become available.

**Prerequisites:** Generally, Calculus I, and a willingness to deal with proofs. We'll also use a little matrix theory, and basics of probability, but I don't think a course in either is necessary. I'm happy to talk to you if you have questions or concerns about prerequisites. If we run into material requiring more than what is listed above, I will provide the necessary review in and/or outside of class.

**COURSE OBJECTIVES:** Upon successful completion of this course, you will be able to set up (and, in simple enough cases, perform) computations, such as equilibrium values and strategies on specific games. You will know and understand the theory of cooperative and non-cooperative games in general. You will be able to prove simple results in game theory. You will be better able to independently read advanced mathematics.

**Textbook: Introduction to Game Theory, Peter Morris, Chs. 1, 2, 4, 5, 6.** We will take approximately six weeks for zero-sum games (Chs. 1, 2, and 4), three weeks for non-zero-sum games (Ch. 5), and five weeks on cooperative games (Ch. 6).

You will spend a substantial amount of time outside of class reading the textbook. The course will be structured to encourage and support you in this endeavor. In-class activities will center around our making use of what you have read outside of class.

## GRADES:

**Participation and Homework (60%)** Each homework will consist of three equally important parts, encompassing all together: advance preparation with reading, writing responses to reading questions, creating some of your own questions, reflection; then warm-up exercises and in-class work with others and the whole class; and then completion of main exercises. The details are explained on a separate handout.

I expect everyone to attend and participate actively in class, in particular to speak up during class discussion with questions and ideas, and to work well with others. A substantial part of your work for the course is this active participation in class.

Written assignments will not be accepted after they are due, except in extenuating circumstances that you explain to me as soon as possible. Incomplete homeworks *will* be accepted, though, so please turn in whatever work you have completed when homework is due. You are encouraged to work together on your homework, but you must write up your solutions by yourself.

**Midterm (15%)** The midterm will cover all material we have discussed to that point, and will be on

Mon., 10 Oct.

**Final (25%)** The final exam will be comprehensive over all material we discuss in class. The final will be on

Mon., 5 Dec., 1:00–3:45 p.m.

Makeup tests can be given only in extraordinary and unavoidable circumstances, and with advance notice.

**Attendance policy:** Due to the course structure, attendance is mandatory. There is no particular penalty for missing a particular class, but you cannot get a good participation grade if you miss too many classes. I will usually “excuse” an absence if you tell me about it in advance, or, in cases of emergencies, as soon as possible afterwards.

**Drop date:** The deadline for student-initiated drops with a W is Fri., 28 Oct. After this date, you can only drop with the Dean’s approval, which is granted only under extenuating circumstances.

I hope everyone will complete the course successfully, but if you are having doubts about your progress, I will be happy to discuss your standing in the course to help you decide whether or not to drop. This course is not likely to be offered again in the near future, so please exercise the drop option judiciously.