AMS 80A: Gambling and Gaming (Spring 2011)
General course information

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Office hours* Mon 3-4pm; Wed 1-2pm Tue 1-2pm; Fri 11am-12pm
* The TA office hours will be held in Jack’s Lounge (in the Baskin Engineering building).

Web page: http://www.soe.ucsc.edu/classes/ams080a/Spring11/

Lectures: Tuesday, Thursday 10:00-11:45 am (Thimann Lecture 003)

Course description (from the registrar): Games of chance and strategy motivated early developments in probability, statistics, and decision theory. Course uses popular games to introduce students to these concepts, which underpin recent scientific developments in economics, genetics, ecology, and physics.

Course objectives: To provide an introduction to basic concepts of probability and game theory motivated by (and illustrated with) common games of chance. Although some key ideas of statistical reasoning will be introduced, note that this is not a course on statistical data analysis.

Background: There is no formal prerequisite, in particular, no background on probability or statistics is required. The required mathematical background is also limited, although good working knowledge of algebra will be assumed.

Textbook: There is no required textbook. Reading materials will be made available through the course web page.

Reading: The material in this course is cumulative and may go quickly. It is expected that you will stay up to date by going over the lecture notes, reading from relevant reading materials, and practicing with the problems from the homework assignments.

Note that the lecture notes will not be made available on-line. Therefore, although attendance of lectures is entirely optional, it will be your responsibility to obtain the notes from any classes missed and to catch up on the corresponding course material. Office hours will be used to address
clarification questions on topics covered in class and questions about homework problems. It will not be feasible for any particular student to use the instructor’s or the TA’s office hours to go over the material from a class that she/he may have missed.

**Homework:** Homework will be assigned (on a weekly or biweekly basis), but will not be collected or graded. Some of the problems will be discussed during lecture. Even though homework will not be graded, it is critical for good performance in the course to work on the homework problems on a consistent basis. This will enable you to develop facility in probabilistic thinking and statistical reasoning through regular practice (and, of course, help you prepare for the exams).

**Movie summaries:** Six movies will be screened as part of certain classes. The first one provides a historical perspective of gambling in the US, whereas the other five (from the “Breaking Vegas” series of The History Channel) focus on various approaches (some more scientific than others!) followed by groups of players to increase their chance of winning on the games of roulette, blackjack, and craps.

One week after each movie is screened, you must submit (in class) an one-page summary for the movie, including a reference to events in the beginning, middle and end of the movie. Each summary will count for 3% of the total grade. The lowest score will be dropped when computing your total score from the movie summaries. This is meant to account for any reason that might prevent you from turning in one of the summaries. Late movie summaries will not be accepted.

**Exams:** There will be two exams during the quarter (with tentative dates below) and a final exam.

- **Exam 1:** Thursday April 28
- **Exam 2:** Tuesday May 24
- **Final exam:** Thursday June 9, 12-3pm

Note that the final exam date and time is designated by the registrar. The other two exams will be in-class during lecture time. All three exams will be closed-book, closed-notes, but you may bring one (letter size) piece of paper with notes and formulas on both sides. Make-up exams will not be assigned. The final exam will be comprehensive.

**Re-grade requests:** We will consider re-grade requests for the two exams. In all cases, the request will be considered only within a week after returning the exam papers (except, of course, for outright grading mistakes such as wrong addition of points). You must provide your written request along with the exam paper.

**Course grade:** Movie summaries: 15%; Exams 1 and 2: 50% (25% each); Final exam: 35%