

**Law 7930-24
Strategy in Law and Business
Jonathan Klick**

Black Friday

**April 28, 2006
8:30-11:30
Room R107**

This final exam consists of 6 questions (plus subparts) on pages 1-3 (note: this page is not included in the numbering). The exam is out of 100 points and the weight of each question is noted.

This is an open book and open note exam. You may use your textbook, class notes, text supplements, commercial outlines, commercial supplements, lucky charms, and any other printed or written materials you believe will be helpful in completing your answers. Surfing the internet is not permitted during the exam period.

You will be given three hours to complete this exam, and you may allocate your time among the questions as you see fit. There is no answer sheet for this exam. You may write as long or as short an answer as you believe is necessary to completely answer the test questions. If you need extra bluebooks, please quietly request them from the proctor. If you finish early, please submit your bluebooks or computer disks to the exam proctor and quietly exit the room.

If you perceive an ambiguity or error in any test question, please proceed to answer it, noting the ambiguity/error and making any reasonable assumptions you believe are necessary to answer the question. Please state these assumptions in your answer and provide your justification for the assumption. If you show your work, you may receive partial credit for an incorrect answer.

Since some students have arranged to take the exam at a later date, recognize that any information you provide them about the exam will adversely affect your own grade because of the law school's grading curve.

Good luck and have fun strategizing this summer.

1. Type-II diabetes is a very expensive disease both in terms of lost productivity and in terms of the expense of treatments (dialysis, for example, can cost more than \$30,000 per year for an average diabetic). Most of the costs of diabetes accrue relatively late in life when diabetics are senior citizens. However, these costs could be largely avoided if diabetics and pre-diabetics (i.e., individuals whose weight and glucose levels suggest they are at a high risk for developing Type II diabetes) engaged in behavioral modifications before complications develop. Evidence suggests, for example, that if diabetics have access to blood sugar monitoring equipment and they consult with dieticians and fitness consultants during their 40s and 50s, many diabetics could control their disease, avoiding the costly treatments and complications in their old age altogether. Given the huge medical expenses associated with diabetes and the relatively cheap preventive measures available, it may seem peculiar that many (if not most) private insurance plans do not cover monitoring equipment, nutrition consults, gym memberships, etc. for at-risk individuals. Provide a rationale(s), informed by what you learned in your study of game theory, for this seemingly short-sighted decision made by private insurance plans.

(25 points)

2. In the article “A Law and Economics Perspective on Terrorism” (forthcoming in *Public Choice*) Garoupa, Klick, and Parisi describe a plan they claim would make it easier to monitor terrorist threats in the U.S. They offer a scheme in which the government has access to all private records, communications (including the right to wiretap, obtain records from internet service providers, etc.), etc. and can use this information in terror-related investigations and prosecutions. However, all individuals have the right to choose to keep this information private (i.e., not available to the government without the standard probable cause grounds currently in place under constitutional law) if they pay a privacy tax every year. From a game theory perspective (i.e., try to avoid spending your time discussing the constitutional aspects of such a scheme), discuss the merits of such a proposal in terms of policing/preventing terrorism. Also, discuss the pre-commitment problems/opportunities such a scheme would present to the government and individuals.

(25 points)

3. In 1998, assume the three best baseball players in Major League Baseball are Mark McGwire, Sammy Sosa, and Barry Bonds. These three players are so good that one of them is guaranteed to “win” the mantle of best player of the year which includes huge returns from commercial endorsements (specifically, assume that whichever one ends up with the best statistics gets his face on the Wheaties box which is worth \$100 million). If none does steroids, each has an equal chance of winning. If one does steroids and doesn’t get caught and the others don’t use steroids, the steroid user will win. If two do steroids and don’t get caught, each of the users has an equal chance of winning. If all do steroids and don’t get caught, they all have an equal chance of winning.

3.a Assume for this question, there is zero chance of getting caught. Construct the game matrix for a simultaneous move game and solve for the Nash equilibrium(s) in pure strategies (i.e., Use Steroids & Don't Use Steroids) if one exists.

3.b Now assume that Major League Baseball has a system in place where it tests McGwire, Sosa, and Bonds simultaneously such that if it catches one of the players using steroids, it will necessarily catch all of the steroid users. In the case where a player(s) is caught, that/those players automatically lose the contest and the remaining player(s) win as set out above (i.e., if one is left, he wins with 100%; if 2 are left, each has a 50% chance of winning; if none is left, no one wins). At what probability of detection (p) will none of the players use steroids? (Note: if you get the answer wrong, but provide me with the method/game you used to come up with your answer, you may get partial credit if the method makes some sense).

3.c If steroid use has some private costs associated with it (e.g., increases the likelihood of liver damage, increases heart attack risk, causes reproductive problems among males, etc.), drawing intuition from your answers to 3.a and 3.b, make an argument that McGwire, Sosa, and Bonds might all prefer a very draconian Major League Baseball policy on steroids that includes both frequent testing (i.e., high detection rates) and severe penalties (banning offenders from baseball).

3.d Why might it not be a good idea to rely on individual teams to enforce a steroids policy?

(20 points)

4. A number of states have proposed split-recovery statutes with respect to punitive damages in which case any punitive damages awarded at trial will be split between the plaintiff and the state.

4.a Model the following sequential move game in which a plaintiffs' lawyer files a class action against a corporate defendant. If the case goes to trial, there is a 75% chance the plaintiff class will be awarded a judgment for \$50 million in compensatory damages (25% the judgment is for \$0) and a 20% chance it will be awarded \$500 million in punitive damages. The lawyer gets 1/3 of the amount that goes to the class as a fee in the event of a settlement or a win at trial. It costs the defendant \$1 million to go to trial and it costs the plaintiffs' lawyer \$250,000 to go to trial. In this scenario, there is no split recovery statute. Defendant makes the settlement offer; if the plaintiffs' lawyer declines, the case goes to trial. Model and solve the settlement game.

4.b Now assume that the state has a split recovery statute in place such that the state gets 50% of any punitive damages awarded. Everything else is the same as in 4.a. Model and solve this game.

4.c Assume all details are the same as in 4.b BUT now the plaintiffs' lawyer makes the settlement. If the defendant rejects, the case goes to trial. Model and solve this game.

4.d Assume all details are the same as in 4.c BUT now there are three periods during which settlement can be made. The defendant incurs no costs during the settlement periods while the plaintiffs' lawyer incurs a loss of \$100,000 per period (in terms of opportunity cost) in which settlement does not occur. Plaintiffs' lawyer makes the offer in each period. If the defense accepts, the game is over. If the defense rejects, the next settlement period begins. If the defense rejects in the third period, the case goes to trial. Model and solve this game.

(20 points)

5. In a model of family bargaining (i.e., a husband and wife bargaining over family resources), improved career options for women (e.g., more lucrative job options being opened up for women, women receiving more formal education, etc.) arguably improve the bargaining power of even those women who choose not to work outside of the home (i.e., stay-at-home moms). Provide intuition for this insight using your knowledge of bargaining games.

(5 points)

6. In a situation in which grades are determined by a strong curve (like we have at the law school), how are Bonus Questions like a zero sum game?

(5 points)

Bonus Question (worth +1 point):

If you were all told to meet at noon at some place on the law school grounds after the exam today, but the location was not stipulated and none of you could communicate with each other before arriving at the place, where would you choose?