

Homework 1, Stat 100a, due Thu Oct 12 in the beginning of class.

- 1) List the names and email addresses of two other students in this course.
- 2) From the gambling addiction handout, according to the Journal of Gambling Studies, in 2005 what percentage of college students reported pathological gambling?

From the textbook, problems 2.4, 2.9, 2.12, 2.20, 3.2, and 3.6.

2.4. What is the probability that you will flop a straight flush on your next hand? (Assume you never fold.)

2.9. What is the probability that you will flop two pairs on your next hand? Note that this includes the case where you have a pocket pair and the flop contains a different pair. (Assume you never fold.)

2.12. What is the probability that on your next hand your hole cards will both be face cards? A face card is any king, queen or jack.

2.20. What is the probability of flopping the unbreakable nuts? Assume you are sure to see the flop. See below for a definition of unbreakable nuts.

3.2. Suppose A and B are independent events. Let  $O_A$  = the odds against A and  $O_B$  = the odds against B. What are the odds against AB? Express your answer a) in terms of  $P(A)$  and  $P(B)$ , and b) in terms of  $O_A$  and  $O_B$ .

3.6. Let A be the event that both of your two hole cards are face cards and let B be the event that both your hole cards form a pair. Are A and B independent?

*Unbreakable nuts:* Not only the *currently* best 5-card poker hand possible given the current board, but also the best 5-card poker hand possible regardless of what future board cards will come. For instance, if you have  $7\spadesuit\ 8\spadesuit$  and the flop is  $4\spadesuit\ 5\spadesuit\ 6\spadesuit$ , then you have the unbreakable nuts, but if the flop is  $5\spadesuit\ 6\spadesuit\ 9\spadesuit$  then you do not because the turn and river could be the  $10\spadesuit$  and  $J\spadesuit$  and someone could have the  $Q\spadesuit\ K\spadesuit$  and beat you.