Economics 310   Menzie D. Chinn
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University of Wisconsin-Madison

Practice Midterm Exam 1

Answer all questions in your bluebook. Make certain you write your name, your student
ID number, and your TA's name on your bluebook.

Point allocations are proportional to time allocations.

1.   (10 minutes) Many firms use on-the-job training to teach their employees
        computer programming. Suppose you work in the personnel department of a firm
        that just finished training a group of its employees to program, and you have been
        requested to review the performance of one of the trainees on the final test that
        was given to all trainees. The mean and standard deviation of the test scores are
        80 and 5, respectively, and the distribution of scores is mound-shaped. If a firm
        wanted to give the best 2.5% of the trainees a big promotion, what test score
        would be used to identify the trainees in question?

2.   (10 minutes) The Tampa fire department reviewed all telephone calls of
        emergency made over the past 15 years and have claimed that the chance that any
        given call is a false alarm is only 10%. Suppose that three calls from that time
        period are randomly selected. Find the probability that exactly two of the three
        calls selected turned out to be false alarms.

3.   (10 minutes) An experiment is to be conducted to determine whether an
        acclaimed stock market analyst has extrasensory perception (ESP). Five different
        cards are shuffled and one is chosen at random. The analyst will try to identify
        which card was drawn without seeing it. The experiment is repeated 10 times and
        x, the number of correct decisions, is recorded. If the analyst is guessing (and
        does not possess ESP), what is the probability that the analyst gets exactly four of
        the 10 trials correct?

4.   (20 minutes total) In a certain city, 10 percent of the people are fascists, 70% are
        socialists and 20% are communists. Records indicate that in the last election, 65%
        of the fascists voted, 82% of the socialists and 50% of the communists. If a person
        in the city is selected at random and

        (a) (5 minutes) it is learned that she voted in the last election, what is the
        probability that she is a socialist?
        (b) (15 minutes) it is learned that she did not vote in the last election, what is the
        probability that she is either a fascist or communist?

5. (10 minutes) A student makes the following assumptions when applying to law schools. First, that schools make their admission decisions independent of one another. Hence, acceptance at one school provides no information on the chance of being accepted at another. Second, the student assumes that for the group of schools under consideration the probability of acceptance is the same at each school. The student believes (correctly) that the probability of being accepted by at least one law school in four is 0.59. Under the assumptions stated above, what is the (marginal) probability of acceptance in one application?

6.10.2003

[Table II from the textbook is provided; refer to your textbook]