Statistics 134

Fall 2000

Lectures MWF 2 to 3 in 180 Tan Hall

Instructor David Steinsaltz, 347 Evans Hall, dstein@stat.berkeley.edu

Office Hours Monday 1–2, Thursday 2–3.

TA TBA

Required Text *Probability* by J. Pitman.

The course will generally follow the Pitman text. In particular, the first three chapters will be covered in the first 6 to 7 weeks. A few sections will be left out in the latter part of the course. You are responsible for reading the text. Relevant sections will be announced in class each week.

Homework This will be assigned in class on Wednesday. You should turn in your homework in class on the following Wednesday. The lowest two homework scores will not be counted in your grade. There will be no acceptance of late homeworks, except in case of a prolonged serious illness or family crisis. Solutions will be posted in a glass case in the central corridor of the third floor of Evans Hall.

Midterms There will be one midterm exam, on Friday, October 20. You may bring a calculator and one double-sided page of notes to the exams. There will be no early or late exams.

Final exam The final will be 5–8 pm, Wednesday, December 20.

Grading Your grade in the course will be based on a score, of which 20% will be derived from your homework, 30% will be your score on the midterm exam, and 50% the final exam. There is no predetermined identification of particular exam scores with letter grades, nor a fixed percentage of each letter grade. Typically about 30% of students in

this course receive A's, 30% B's, and a few fail. These percentages are not engraved in stone (or burned onto a CD-ROM, to use a more contemporary metaphor).

Prerequisite One year of calculus. Calculus will be used heavily in the second half of the course. If you are not reasonably comfortable with derivatives, integrals, and Riemann sums you will have trouble. Problem set 0 is intended to assess your background in this area. If you have difficulty with these problems, you may not be adequately prepared.

Problem Set 0: Self test

1) Compute a) $\int_{-1}^{1} e^{-x} dx$;
b) $\int_{-1}^{1} x e^{-x^2} dx$.

2) a) Find the minimum of $e^x - 1 - x$ over all real numbers x;
b) Use part (a) to show that $e^x \geq 1 + x$ for all real numbers x.

3) a) Compute $1 + 2 + \cdots + 2000$;
b) Show that

$$\frac{2000^{n+1}}{n+1} \leq 1^n + 2^n + 3^n + \cdots + 2000^n \leq \frac{2001^{n+1}}{n+1}$$

for all positive n.