

Mathematical Statistics, Spring 1997

Instructor; Andrew J. Sommes

Textbook; R. Larsen and M. Marx, *Introduction to Mathematical Statistics and Its Applications*, 2nd edition, Prentice Hall, 1986.

Comments on suitability of textbook: It is fine

Comments about the course pre- or corequisites. Are the students adequately prepared for this class?

Usually they are (following Math 323). This year they were not:

- didn't cover many of the basic distributions (e.g., geometric etc)
- didn't touch the central limit theorem
- didn't do joint continuous distributions (which is incredible)
- didn't touch moment generating functions, changes of densities under changes of variables etc.

This meant I had to do a lot of catchup work and met the class one extra hour (Tuesday at 7PM) most weeks for review, help etc. I did manage to cover the full syllabus for the actuarial test, but cut some corners on the circle of ideas (actually somewhat dated---the textbooks are a bit behind the times) on consistency and sufficiency of estimators. I was unable to cover analysis of variance (ANOVA), design of experiments (e.g., block designs), and all but the easiest nonparametric estimators. I did cover all (and maybe a little more) of the material that is covered on an average year).

Comments about the course content. It is very nice. I strongly recommend the same person teach 323 and 324 (as will happen next year), or that the two people coordinate carefully. I would like to see 323-324 expanded to a 3 semester sequence where 323 went further and did the basic stochastic processes like Brownian motion. This would allow with 324 to cover some relevant topics that need the stochastic processes. Undergraduate engineering courses often cover this material without proofs, and it would be a service to our students to introduce them to this material).

Comments about current or potential use of computers in this course. Much of the homework requires Maple and/or a spreadsheet. I regularly once every other week at worst give a demo in class, e.g., yesterday I did an animation of the bivariate normal distribution as the correlation ranged from -1 to 1.)