STA 4321 Sec 4444
STA 5325 Sec 4449

Mathematical Statistics 1

Fall, 1999

Course Information

Time: MWF 9:35 a.m. – 10:25 p.m. (Period 3) **Location:** 100 FLO (Griffin-Floyd Hall)

Instructor: Dr. Brett Presnell

Office: 220 FLO **E-mail:** presnell@stat.ufl.edu

Office Hours: MW: 10:40 – 11:30 a.m. (Period 4) **Phone:** 392-1941 Ext. 236
R: 1:55 – 2:45 p.m. (Period 7)

Text: Wackerly, Mendenhall and Scheaffer, *Mathematical Statistics with Applications* (5th ed), PWS-KENT Publishing Co., 1996.

Course Content and Objectives

The sequence of courses STA 4321-4322 develops the basic mathematical theory of statistical inference at an undergraduate level. Three semesters of calculus are prerequisite for these courses. In the first course, STA 4321, the student is introduced to the ideas and methods of probability and distribution theory. In STA 4322, these tools are used to develop the theory of statistical estimation and hypothesis testing.

The topics covered in STA 4321 are those of Chapters 1–6 of the text, including: the basics of discrete probability; discrete and continuous random variables and their distributions, especially those distributions most commonly encountered in statistics; calculation of means, variances, and other expectations; moment generating functions; multivariate probability distributions; variances and covariances of linear combinations of random variables; and finally methods for finding the distributions of functions of random variables.

Course Policies

Grading

Three exams will be given during the term, each accounting for 28% of your course grade. In addition, quizzes will be given regularly during the term. No make-ups of quizzes will be given except under very exceptional circumstances, but the lowest two quiz scores (including any missed quizzes) will be dropped. Your remaining quizzes will determine 16% of your course grade. Course averages of at least 90%, 80%, and 70% will guarantee letter grades of A, B, and C, respectively.

Exam Dates

Exams times will be announced in class, but the first exam will be given around the end of the fifth week of classes, the second exam around the end of the tenth week, and the last exam during the last week of classes.

Makeups

Since the lowest two quizzes will be dropped, there will be no makeups of quizzes under normal circumstances. In case a student needs to be excused from an exam for non-emergency reasons, the student must make arrangements with the instructor well *before* the scheduled day of testing. Otherwise, a student will

be allowed to make up a missed exam or make other arrangements to replace the missed portion of their grade *only* in case of an *documented* emergency or medical problem. Such arrangements must be made as soon after the exam as possible. In case of a medical problem, the student must present a letter from a *doctor* stating that the student was unable to take the exam. A note simply stating that the student visited the infirmary on the day in question will *not* be acceptable.

Suggested Homework Problems

In order to master the course material it is essential that the student work as many exercises as possible. Most exam questions will be similar to examples from the lectures and to homework problems. The following list of exercises from the text represents the kinds of problems that you should be able to solve. Solve as many problems as you can. A solutions manual will be available at the reserve desk in the Science Library for you to check your work, but it is very important that you solve the problems on your own before checking your solutions. Some problems may require considerable effort on your part, but this is an important part of the learning process which cannot be replaced with simply looking up the solutions. It is crucial that you do problems every day in order to keep up with the pace of the course. You should also make sure to ask about problems that you do not understand (there are a few errors in the solutions given in the back of the text and in the solutions manual).

Chapter	**Exercises**
2	1, 2, 4, 5, 9–12, 14, 16, 17, 20, 26–31, 35, 38–41, 48, 49–51, 53–55, 57–62, 64, 66, 68, 69, 70, 72, 76, 78, 79, 81, 83, 86, 87, 91–95, 99, 102–104, 108, 112–115, 118, 119
3	2–6, 9–11, 16, 18–21, 23, 27, 28, 30, 34, 35, 38, 39, 41, 43, 44, 47–50, 56, 59, 71, 72, 74, 75, 80, 81–82, 85, 87, 91, 94, 95, 99–104, 108, 109, 113, 117, 121, 123, 131, 138, 139, 140, 141, 144, 146, 148, 153, 155, 156
4	3–7, 9, 11, 13, 16–20, 22, 23–28, 32, 36–38, 40, 47–49, 51, 54, 55, 58, 62, 63–65, 67–70, 71–73, 75, 78, 82, 83, 85, 88, 96, 118
5	1, 2, 4, 5, 7–10, 12, 13, 14, 16, 17, 19–23, 25–30, 32, 33, 35–39, 41, 44, 46–47, 49–51, 54, 55, 57–61, 63, 65, 66, 70, 72, 73, 75, 76, 87, 90, 92, 103, 105
6	1–3, 7–9, 13–16, 19, 21–24, 27, 30–32, 34–40, 42, 43, 45, 47–49, 52, 53, 55, 56