

STATISTICS

Welcome to Sections 2 and 3 of Math 320! My name is Professor Edward Spitznagel. This is an introductory course in statistics (and the underlying probability theory that supports it). If you learn this subject well, you will find all sorts of doors open to you, as statistics is one of the few academic subjects in which demand for capable people far outstrips supply.

Times and Places

These sections meet Monday, Wednesday, and Friday from 10-11 and 11-12 in McDonnell 362. The lectures will be virtually identical, so you may, if you have to miss the class you are registered for, attend the other one. (You can even come to Section 1 if you are of stout heart.)

My *official* office hours are from 12 to 1 on Monday and Wednesday, in Room 118 of Cupples I. However, I am there at other times, on average perhaps 80 hours a week (Me, a workaholic?), and you are *welcome* to knock anytime you see the light on. My telephone number is 935-6745.

Textbook and Calculator

The text is Moore, McCabe, Duckworth, and Sclove's *The Practice of Business Statistics, Comprehensive Version*. Due to the temper of the times, our book is much less solid than earlier ones. However, it does have good material including an excellent chapter on the bootstrap, a very modern and powerful statistical method. (Note: The publisher this year is offering the comprehensive version in the form of the core

version, plus seven companion chapters. The bookstore has the core version on its shelves, and the companion chapters will be delivered to you directly through the mathematics department office at no extra charge).

When you buy the book, you will notice that it is shrink-wrapped with a package called the Upgrade Study Pack. That supplement was free, and I got it mostly because it contains a solutions manual for all the odd-numbered problems. It also contains a lot of tutorial stuff on CD's, which I will not be using, but which you are welcome to try out.

The **Texas Instruments TI-83, TI-84, and TI-89** are the official calculator models for the course. With any of these in your hands, you won't have to master the tricky distribution function tables at the back of the book. Please note then that I will **not** supply copies of those tables when you take your examinations, because what the calculators give you is vastly superior to what is in the tables.

Please note also that none of the other similar looking calculators, the TI-81, TI-82, TI-85, TI-86, and TI-87, has these distribution functions, so you **will need** one of the specific TI-83, TI-84, and TI-89 models. I will be using a TI-83 in problems that I do in class. The TI-84 is very similar to the TI-83, so if you have a TI-84, you should be able to follow along just fine. The TI-89 has a somewhat different layout, so if you need to buy a calculator for the course, I recommend a TI-83 or TI-84. Those of you who already own and are familiar with TI-89's should have no trouble following along.

Schedule

The schedule corresponds to the table of homework problems on the back of this leaflet. We will proceed at a rate of one section per class day. The due dates for the assignments (always a Monday except for September 5th) are given in the table, and each assignment is based on class meetings of the previous week.

Homework

Six homework problems are due each week, as listed in the schedule. These have even numbers, since the solutions to all the odd-numbered problems are contained in the Upgrade Study Pack. In the schedule to the right of the required even-numbered problems are listed six odd-numbered problems per week. Your exams will be based on both sets of problems, so it will be a good idea to make sure you understand how to do those odd-numbered problems as well.

You may, if you wish, use statistical software as well as hand/calculator computations to do the homework problems. In some of the later chapters, you will find that eases the burden of data entry for the more sophisticated types of analyses. The data files are all contained in the CD packaged in the back of the book. Excel can do most but not all of the computations.

Grades

Your course grade will be determined from an average of graded homework and examinations. The A range will be 90 to 100, the B range will be 80 to 90, and the C range will be 70 to 80, and the D range will be 60 to 70, with plus and minus grades at the tops and bottoms of each of these ranges. The homework will count for 25% of your grade. Three in-semester examinations will each count for 15% of your grade, and the final examination will count for 30%.

Examination Schedule

The three in-semester examinations will be given from 6:30PM to 8:30PM on Monday, September 26th, **Thursday, October 27th**, and Tuesday, November 15th. Note the different days of the week. (Ordinarily the day of the week would be the same, but University planners deemed it necessary that the weekdays differ so that the grand schedule, including exams for Biology, Chemistry, Mathematics, and Physics can work around religious holidays.)

The final examination will be given on **Monday, December 19, 10:30AM-12:30PM**.

Homework Format

Unless you have graded for a course, you probably have no idea how much time it takes assessing the steps a student has gone through if the work isn't well organized. To assist the grader, I would like you to follow a specific format. All those adhering to the format will receive a 5% bonus of the possible credit on each assignment.

First, open the URL

artsci.wustl.edu/~ed/hw320.doc

You will find a single page with a title that says **Vlad Teppich** followed by spaces for Section, Homework Number, and Problem Number. Replace "**Vlad Teppich**" with your own name, type in the number of the section you are registered for, and print the page. Make copies of this sheet at your favorite copy center, enough to last you the entire semester. If you have any trouble, come to my office and we'll do it together.

To receive the bonus, start each problem on one of these sheets and write in the homework number and the problem number. Your final answer goes in the box at the lower right (draw extra boxes if there are multiple answers). Assemble the sheets in order and put one staple in the upper left corner. Normally you should be able to fit a problem on a single

sheet, but if it won't fit, use a second one of these formatted sheets.

As mentioned earlier, with one exception, homework is due Monday. For convenience, you may bring it with you to class, or you may hand it in at the Math Department office by noon.

Homework is to be done individually. Cases of copying or collaborating on homework are cheating and will be referred to the Academic Integrity Officer of the College, Dean Dirk M. Killen.

Attendance

Class attendance is optional, but I hope you continue coming to class throughout the semester. Be not misled by the fact that the book begins fairly simply. The material does get more challenging by the end of Chapter 3 and stays that way through to the end of the course.

For two reasons, I will occasionally take attendance. First, if a parent or a dean wonders why a student is not doing well, I can cite lack of attendance as a possible explanation. Second, I will not waste my time answering e-mails and voice-mails from students who could have had their questions answered in class.

Examinations

All four examinations will be thirty question multiple choice, with 15 questions taken from the six required (even-numbered) homework problems, and 15 questions taken from the supplementary (odd-numbered) problems. The problem texts will be essentially the same as the book's problems, but the numbers will be changed.

Given the two hour time limit, I don't expect anything near perfection. Since 15 of the problems will be from the graded homework, I will consider a score of 15 to be a minimal satisfactory score, corresponding to a C- . For simplicity in combining homework with exam scores to produce a course average, the range of exam scores from 15 to 30 will be linearly transformed to become 70 to 100. The range of exam scores from 0 to 15 will be linearly transformed to become 0 to 70.

You may bring one 3×5 inch file card of formulas to each examination. You may use both sides, but everything on the card must be hand-written, not photocopied, and certainly not photo-reduced. The purpose of the card is to let you jog your memory, not contain everything covered in the last month.

HOMEWORK SCHEDULE

| Due Date | Required (for homework and exams) | | | | | | Supplementary (study for exams) | | | | | |
|---------------|-----------------------------------|-------|-------|-------|-------|-------------|---------------------------------|-------|-------|-------|-------|-------|
| 7-Sep | 1.12 | 1.36 | 1.38 | 1.66 | 1.78 | 1.90 | 1.11 | 1.45 | 1.53 | 1.69 | 1.77 | 1.79 |
| 12-Sep | 2.8 | 2.16 | 2.20 | 2.40 | 2.48 | 2.50 | 2.7 | 2.19 | 2.23 | 2.27 | 2.47 | 2.59 |
| 19-Sep | 2.62 | 2.68 | 2.78 | 2.112 | 3.8 | 3.10 | 2.69 | 2.71 | 2.79 | 2.85 | 3.25 | |
| 26-Sep | 3.34 | 3.40 | 3.52 | 3.60 | 4.4 | 4.6 | 3.31 | 3.41 | 3.63 | 3.71 | 4.3 | 4.5 |
| 3-Oct | 4.22 | 4.52 | 4.70 | 4.86 | 4.116 | 4.118 | 4.45 | 4.49 | 4.69 | 4.71 | 4.115 | 4.117 |
| 10-Oct | 5.10 | 5.16 | 5.40 | 5.42 | 5.46 | 5.56 | 5.5 | 5.21 | 5.27 | 5.31 | 5.51 | 5.53 |
| 17-Oct | 5.60 | 5.64 | 6.18 | 6.24 | 6.54 | 6.64 | 5.73 | 5.77 | 6.11 | 6.27 | 6.55 | 6.63 |
| 24-Oct | 6.74 | 6.76 | 6.78 | 6.80 | 6.82 | 6.88 | 6.67 | 6.73 | 6.79 | 6.81 | 6.83 | 6.101 |
| 31-Oct | 7.6 | 7.10 | 7.36 | 7.64 | 7.70 | 7.92 | 7.5 | 7.19 | 7.47 | 7.63 | 7.71 | 7.93 |
| 7-Nov | 8.8 | 8.24 | 8.36 | 8.42 | 9.10 | 9.36 | 8.23 | 8.25 | 8.71 | 8.81 | 9.13 | 9.25 |
| 14-Nov | 10.6 | 10.60 | 10.22 | 10.30 | 10.42 | 10.46 | 10.5 | 10.25 | 10.29 | 10.31 | 10.33 | 10.35 |
| 21-Nov | 11.22 | 11.24 | 11.28 | 11.30 | 11.70 | 11.78 | 11.21 | 11.25 | 11.27 | 11.29 | 11.45 | 11.71 |
| 5-Dec | 14.4 | 14.54 | 14.64 | 14.70 | 15.30 | 15.38 | 14.43 | 14.45 | 14.49 | 14.65 | 14.71 | 15.31 |
| 12-Dec | 16.10 | 16.20 | 17.2 | 17.10 | 17.20 | 17.22 | 16.11 | 16.25 | 17.11 | 17.13 | 17.21 | 17.23 |