Introduction to Statistics — Stat 1040, Section 006, Fall 2004

Instructor: Dr. Jürgen Symanzik
Office: Lund 325
Phone: 797-0696
FAX: 797-1822
e-mail: symanzik@math.usu.edu
WWW: http://www.math.usu.edu/~symanzik/

Office Hours: MWF 9am – 10am and by appointment.

Classes & Rooms:

Please note that there are no classes on Mo 9/6 (Labor Day) and on We–Fr 11/24–11/26 (Thanksgiving Holiday).


Additional Course Material (Workbook): Bound packet of fill-in lecture notes, copies of old exams and old quizzes, solutions to review questions, etc., available at the bookstore for about $13.00. Please note that there are different sets of Stat 1040 notes available at the bookstore — you need the notes for Section 006.

Course Objectives:
- Developing statistical literacy needed to properly understand and use information in media and in everyday life.
- Becoming familiar with statistical methods used for collecting, analyzing, and interpreting data.
- Developing critical thinking and reasoning capabilities.

Topics:
Design of experiments: controlled experiments and observational studies
Descriptive statistics: histograms, the average, the standard deviation
The normal approximation for data
Correlation and regression
Brief introduction to probability
The law of averages, the central limit theorem
Sample surveys, chance errors in sampling
Chance models: examples
Tests of significance.

12 Quizzes: Usually on Friday (except Thanksgiving – and days of midterms): 9/3, 9/10, 9/17, 9/24, 10/1, 10/15, 10/22, 10/29, 11/5, 11/19, 11/29, and 12/3.
The last 15 to 20 minutes of class on these 12 days will consist of a brief quiz on the material covered up to the previous class (usually Wednesday). These quizzes will consist of about
two questions. Typically, one question will be a fairly straightforward calculation, while
the other question will generally be more conceptual, generally requiring a short answer
of several sentences. The quizzes will be closed-book and closed-note, but formulas will
be provided. You should prepare for the quizzes by doing the exercises from the book and
by working through the old quizzes from the workbook. Calculators may be necessary.
Each quiz will be graded out of 20 points. Overall, there will be 12 quizzes. At the end of
the semester, your two lowest quiz scores will be dropped, i.e., only your 10 best quizzes
count towards your final grade. This will allow you to miss up to two quizzes for whatever
reason (sickness, travel, snowed-in ;-) without noticing any consequences for your course
grade. Therefore, make-ups will in general not be permitted. However, if you expect
to miss more than two quizzes (e.g., as an USU athlete or for musical performances, job
and job-related travel, etc.), please contact me as soon as possible and we will work on a
make-up solution for you.

2 Midterms: The 2 midterms (and the final exam) will be closed-book and closed-note, but
formulas will be provided. Calculators are required. Each midterm will be graded out of
200 points. Exam policy is no make-ups unless you have a very good reason and notify
me by e-mail in advance that you will not be able to attend a scheduled exam.

First Midterm: approximately Chapters 1–10 Fr 10/8, in class
Second Midterm: approximately Chapters 11–20 Fr 11/12, in class

Final Examination: There is a common final exam for all sections of Stat 1040. The exam
will be on Wednesday, December 15, from 7:30am through 9:20am. If you have ANY
problem with the day or time the final exam is scheduled, you should drop
the course and take it another semester. You will not be allowed to take the
final at another time because of vacation or any other plans. In the case of
a last-minute (medical) emergency, you will be given an incomplete and you
are required to take the common final the next time the class is offered. The
final will be held in the regular classroom unless you are told otherwise in the last week
of classes.

Grades: Your grade will be calculated as 20% quizzes, 20% each midterm, and 40% final exam.
The average grade profile for Stat 1040 is approximately 15% A’s, 25% B’s, 40% C’s, and
20% D’s and F’s. However, there is considerable variation among sections, so the grade
profile for this section may be higher or lower than the overall grade profile for the course.
If every student does satisfactory work, every student will pass the class.

Tutoring Labs: Tutors will be available. They will answer questions and help explain difficult
points in the text. More details will be provided later this week.

Reading and Exercises: Each week, you are expected to read 2 to 3 chapters from the book.
This material will be discussed in the lectures. Homeworks will not be collected, but part
of your reading responsibility is doing the exercise sets at the end of each section and at
least some of the review questions at the end of each chapter. Your ability to do these is a
measure of your understanding of what you have read. Solutions to the suggested review
questions are available in the additional course material. A suggested reading program for
each chapter is as follows:
1. Read the summary at the end of the chapter, taking careful notice of the key words
which are in italic type.
2. Read the entire chapter without looking at the exercise sets, but paying attention to the key words. This much, at least, you should do before the lecture on a given chapter. The remaining steps you should try before the lecture, but may need to wait until after the lecture to complete.

3. Reread the chapter, this time doing the exercise sets. Whenever necessary, look back at the chapter to find the ideas that will help you to do the exercises. Check your answers against those in the back of the book when you have finished a problem. Do not get in the habit of looking at the answers before you attempt the problems!

4. Work the review problems suggested below. These will generally be more challenging than the exercise set problems. When you are done, check your answers against those available in the workbook. If you are not yet comfortable with the material, you may want to look at some of the remaining problems as well (or work through additional questions from quizzes, old midterms, and old finals from the course Web site).

5. Reread the summary to make sure you now understand the key words.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Suggested Review Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part I</td>
<td>2, 1, 4, 5, 7, 9, 10, 11, 12</td>
</tr>
<tr>
<td>Part II</td>
<td>3, 2, 4, 6, 10, 1, 3, 6, 7</td>
</tr>
<tr>
<td></td>
<td>5, 1, 3, 4, 5, 7, 8, 9</td>
</tr>
<tr>
<td></td>
<td>6, 4, 8, 6, 8, 10, 1, 13</td>
</tr>
<tr>
<td>Part III</td>
<td>8, 1, 2, 4, 11</td>
</tr>
<tr>
<td></td>
<td>9, 2, 8, 11, 12</td>
</tr>
<tr>
<td></td>
<td>10, 1, 2, 3, 4</td>
</tr>
<tr>
<td></td>
<td>11, 1, 2, 3, 4, 6, 7, 12</td>
</tr>
<tr>
<td></td>
<td>12, 2, 3, 5, 8, 9, 10, 11, 12</td>
</tr>
<tr>
<td>Part IV</td>
<td>13, 2, 3, 6, 7, 8, 9, 11, 12</td>
</tr>
<tr>
<td></td>
<td>14, 1, 4, 6, 7, 8, 9, 10, 11</td>
</tr>
<tr>
<td></td>
<td>15, S1, S3, S4, S5, S6, S9, S12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Suggested Review Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part V</td>
<td>16, 1, 3, 4, 6, 7, 8, 9, 10</td>
</tr>
<tr>
<td></td>
<td>17, 4, 7, 9, 11</td>
</tr>
<tr>
<td></td>
<td>18, 2, 4, 6, 9</td>
</tr>
<tr>
<td>Part VI</td>
<td>19, 5, 6, 9, 12</td>
</tr>
<tr>
<td></td>
<td>20, 3, 4, 6, 7</td>
</tr>
<tr>
<td></td>
<td>21, 1, 2, 4, 11</td>
</tr>
<tr>
<td></td>
<td>22, 2, 3, 6, 8, 9, 10, 11, 12</td>
</tr>
<tr>
<td>Part VII</td>
<td>26, 1, 2, 3, 5, 6, 8, 10, 12(a)</td>
</tr>
<tr>
<td></td>
<td>27, 1, 3, 7, 8, 10</td>
</tr>
<tr>
<td></td>
<td>28, 1, 2, 3, 7</td>
</tr>
<tr>
<td></td>
<td>29, 4, 5, 7, 9</td>
</tr>
</tbody>
</table>

**Courtesy:** Please turn off pagers and cellular phones before class, and please keep conversations to a minimum during lectures. I will not keep track if you come to class or not. However, I would highly recommend to attend all lectures.

**Disability Policy:** If a student has a disability that will likely require some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center, preferably during the first week of the course. Any requests for special considerations relating to attendance, pedagogy, taking of examinations, etc. must be discussed with and approved by the instructor. In cooperation with the Disability Resource Center, course materials can be provided in alternative formats — large print, audio, diskette, or Braille.

The above schedule and procedures in this course are subject to change in the event of extenuating circumstances.

I will be traveling internationally towards the end of the semester. This may delay the grading of the final exam for a few days. If you plan to graduate this fall (or quickly need to obtain your final grade for some other reason), please let me know as soon as possible and I will grade your exam with highest priority.