Psychology 3101: Research Methods and Data Analysis in Psychology    Fall, 2008

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Lectures: 11:00 – 12:15 Tues. and Thurs.
Muenzinger E0046

Labs:
L110 9:00 – 10:50 Thurs.
L111 1:00 – 2:50 Wed.
L112 9:00 – 10:50 Tues.
L113 3:00 – 4:50 Mon.
L114 1:00 – 2:50 Mon.
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Jason Gwinn
Susannah Lewis
Jason Gwinn
Joanna Vandeover
Joanna Vandeover

General purposes of the course:
1) To facilitate critical evaluations of claims to truth and causality made by psychologists and other scientists.
2) To facilitate comprehension of statistical information presented in journals and books in psychology, and other types of scientific literature.
3) To provide an introduction to the conducting and reporting of psychological research.
4) To provide an introduction to computerized data analysis and interpretation.

Course structure:
This course is structured to give you a variety of opportunities to learn the material at a level that will enable you to be successful both in the course and in the application of what you learn to other academic and non-academic pursuits. You are expected to fully engage in all of these opportunities. First, we will introduce you to new material and review old material in biweekly lectures featuring relevant examples. Second, to support your understanding of material provided in lectures, you will be asked to read assigned chapters in the textbook. Exams will primarily cover lecture material, but additional material from the textbook may also be covered. We will alert you to material in the text, when it is not covered in lectures, for which you will be responsible. Third, weekly labs held by your TA will offer you the chance to apply lecture concepts to data analysis, to
ask homework questions and clarify any confusion you may have, and learn how to use statistical software to test research hypotheses. Attendance in lab is mandatory. Finally, your instructors and your teaching assistants will each have weekly office hours which we encourage you to attend if you want extra instruction.

Our teaching philosophy:
1) Attendance and attention are key. The most efficient and effective way to learn the required material is for you to attend every lecture, and to pay attention. Please arrive on time, limit unnecessary conversation, and refrain from using cell phones, checking email, or browsing the web. Respect your own time and education, and those of your peers.
2) All students learn in their own way and at their own pace. Similarly, students come into any class with a variety of previous knowledge. It is our goal to provide a structured but flexible learning environment that matches challenge with skill.
3) Questions are strongly encouraged. Even if your question is, “Would you say that again in another way?”, please don’t hesitate to ask. If you don’t understand something, it is likely others are confused as well.

Course evaluation:
1) Laboratory grade (30% of final grade): Your lab grade will consist of scores on weekly homework assignments and quizzes. TAs will assign and collect homework assignments every week except the week following an exam. Short quizzes will take place every week in lab, and will evaluate material from the last two lectures. Please note, attendance in lab is mandatory and under no circumstance will make-up quizzes be offered. The two lowest quiz grades will be dropped.
2) Two midterm exams (20% of final grade each). The first exam will be in class on October 9th; the second will be on November 6th. Although the midterm exams are not technically cumulative, you will be expected to have a thorough understanding of all material learned to date.
3) A cumulative final exam (30% of final grade) to be held on December 16th, covering the entire semester.

Exam policies:
Grading: Letter grades on exams will be assigned using percentage scores relative to the average scores of the two individuals earning the most points in the class on any given exam. Anyone earning 90% of the points earned by those top two scorers will receive an A- or above; anyone earning 80% of the points earned by those top two scorers will receive a B- or above; and so forth.
Missing an exam: Except for major life events, make-up exams will not be offered if you miss an exam. In general, illness not requiring a doctor’s visit is not an acceptable excuse. If you need to miss a scheduled exam due to religious obligations, we will make arrangements for you to make up the exam. Please let us know at least two weeks notice prior to the exam in order to accommodate your request.
Accommodations for students with documented disabilities: If you qualify for accommodations because of a disability please submit a letter to us from Disability Services in a timely manner so that your needs may be addressed. Disability Services determines

**Required readings:**
The basic text for the course is:
Belmont, CA: Thomson Wadsworth.
During the first few weeks, there will also be required readings from:
Wadsworth. The required chapters will be available on the course Wiki

**Statistical software:**
For this class, we will be using the program R to conduct data analysis. This program is available
to download for free for both PCs and Macs. You will receive instruction on how to use
R in lab. The program will be installed on the computers you will use in lab, but you are
welcome to install it on your personal computer as well. To download R, go to
http://www.r-project.org/. In general, R requires you to type in commands at a prompt to
run statistical tests. To make R more user-friendly, an add-on is available that has pull-
down menus. This is called R Commander, and you will receive a handout on how to
install and use R Commander.

**Course Wiki**
Go to http://psych.colorado.edu/courses.html. Click on “Fall 2008 Course Wikis” Then click on
3101-100. The course wiki is password protected. Username is “3101student” and the
password will be given out in class.
There are separate Wiki pages for Readings (where you will find the chapters from the Hoyle et
al. book in .pdf format), Lectures, and Labs. There isn’t a lot of stuff there now, but
things will be added as the semester progresses.

**Course Outline:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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<tbody>
<tr>
<td>Aug. 26</td>
<td>Introduction</td>
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<td>Aug. 28 – Sept. 4</td>
<td>Naive vs. scientific approaches to understanding behavior.</td>
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<td>Criteria for evaluating research.</td>
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<td></td>
<td>Validity and reliability: How do we measure what we want to measure?</td>
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<td>Research design: What designs are good for what purposes?</td>
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<td>Readings:</td>
<td>Hoyle, Harris, &amp; Judd: Chapters 1-2</td>
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<td>Sept. 9 – Sept. 18</td>
<td>Descriptive statistics: Frequency distributions, measures of</td>
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<td>central tendency, variability, and relative location.</td>
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<tr>
<td>Readings:</td>
<td>Hoyle, Harris, &amp; Judd: Chapter 17</td>
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<tr>
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<td>Howell</td>
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<td></td>
<td>Chapters 1-5</td>
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Sept. 23 – Oct. 7  The logic of inferential statistics: Probability, sampling distributions, confidence intervals; Single sample t-test.

Readings: Howell: Chapters 6 - 8, 12

Oct. 9  First Midterm Exam

Oct. 14 – Oct. 21  Inferences about the difference between two means; Related and independent samples

Readings: Howell: Chapters 13 -14

Oct. 23 – Nov. 4  Simple regression and correlation

Readings: Howell Chapters 9 - 10

Nov. 6  Second Midterm Exam

Nov. 11 – Dec. 2  Analysis of variance

Readings: Howell Chapters 16 - 17

Dec. 4 – Dec. 9  Contingency tables; Chi-Square

Readings: Howell Chapter 19

Dec. 11  Review and Catch-up

Dec. 16  Final Exam (7:30 - 10:00 a.m.)

Honor Code:

All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council and those students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member involved and non-academic sanctions given by the Honor Code Council (including but not limited to university probation, suspension, or expulsion).

Please refer to www.colorado.edu/honorcode to view the specific guidelines. If you have any questions related to this policy, please contact the Honor Code Council at honor@colorado.edu.