Psy 418: Research Methods and Statistics
Spring Session, 2011 Course Syllabus (Instructor: Josephs)

Instructor: Bob Josephs—email (best method of communication): **josephs@mail.psy.utexas.edu** lectures: TTH, NOA 1.116---11-12:15	Teaching Assistants: Shasta Ihorn, Meg Cason: shasta.ihorn@gmail.com, mjcason@mail.utexas.edu
Office Phone: 471-9788	Labs: #43680* & 43685**: Wed (1-3 in SEA 2.114* & 2.122**)
Office: 3.204 SEA	Offices: SEA 2.114 & 2.122
OHs: Wednesdays, 11-1, pm, and by appt.	OHs: Wed, 3-5pm (Cason); Fri, (3-5pm (Ihorn). All PSY 418 Office Hours & Walk-in Times are held in SEA 2.122

Required Materials:

Experimentation in Psychology: A Guided Tour, by Suter, W. Newton, & Lindgren, Henry Clay (1989 edition) (**SL**). Pickup photocopy at Paradigm. 407 W 24th St. 472-7986. You might also be able to find a less expensive copy online.

Statistics for the Behavioral Sciences, Eighth Edition, by Frederick J. Gravetter & Larry B. Wallnau (**GW**). Available at the University Coop Bookstore, 2246 Guadalupe. Austin, TX 78705. Ph: 476-7211. You might also be able to find a less expensive copy online (new or used).

A calculator. Must be able to perform square roots.

Course Objectives: Statistics is a branch of applied mathematics. Understanding statistics is **critical** not only for those who work in science and related disciplines, but also for those who wish to understand the results of these efforts. David Brooks, the columnist who writes for the New York Times, is a commentator on "The Newshour with Jim Lehrer" and is also a frequent analyst on NPR's "All Things Considered". He has laid out of list of eight essential things to do while in college. One of them is to take a course in statistics. Without a working knowledge of statistics, we are forced to rely upon the conclusions and interpretations of the authors and publicists of a study, and oftentimes (believe it or not!), those interpretations are misleading and sometimes flat-out wrong: (http://www.senseaboutscience.org.uk/index.php/site/other/78/). It is hard to overstate the application of statistics. Whenever data are collected, statistics are used to analyze those data. For example, statistics form the interpretive basis of nearly all studies in medicine, psychology, neuroscience, public policy, economics, the biological sciences, and so on and so forth. In this course, you will be provided with the basic tools to understand, evaluate, conduct, and communicate research. Specifically, you will learn about frequency distributions, central tendency, variability, probability, hypothesis testing, t-tests (for independent and related samples), effect sizes, statistical power, estimation using confidence intervals, one-way and two-way analysis of variance (ANOVA), correlation, linear regression, the chi-square statistic (goodness of fit and independence), and binomial probabilities (including the binomial test and the test of a population proportion). Approximately the first three weeks of the course focus on methodology and related issues, with the remainder of the course focusing on descriptive and inferential statistics. Because this is also an intensive writing requirement, you will be required to complete weekly writing assignments and a term paper.

Although this is not a course on computers, the use of computers is critical for data analysis, and the presentation of the results of experiments. To this end, we will familiarize you with a number of software applications, including but not limited to Excel, Word, PowerPoint, and SPSS.

Requirements: You can earn a maximum of 347 points in the class. Here's how:

The lab, or writing component is worth 132 points. Your TA will cover these assignments in greater detail in lab. To avoid confusion, please be aware of the following rule: For *all* written assignments, the following late submission rules apply:

> If you turn in the submission late (past the deadline) by more than 1 minute, you will receive half credit. If you are late by more than 24 hours, you will receive no credit.

Writing Center: I strongly encourage you to use the Undergraduate Writing Center, FAC 211, 471-6222: <http://uwc.utexas.edu/home>http://uwc.utexas.edu/home). The Undergraduate Writing Center offers *free*, individualized, expert help with writing for any UT undergraduate, by appointment or on a drop-in basis. Any undergraduate enrolled in a course at UT can visit the UWC for assistance with any writing project. They work with students from every department on campus, for both academic and non-academic writing. Whether you are writing a lab report, a resume, a term paper, a statement for an application, or your own poetry, UWC consultants will be happy to work with you. Their services are not just for writing with "problems." Getting feedback from an informed audience is a normal part of a successful writing project. Consultants help students develop strategies to improve their writing. The assistance they provide is intended to foster independence. Each student determines how to use the consultant's advice. The consultants are trained to help you work on your writing in ways that preserve the integrity of your work.

Statistics Tutoring: There is tutoring for Psychology Statistics at the UT Learning Center at Jester, listed as "Statistics for Social Sciences." There is free "drop-in" tutoring, but you probably have to get an appointment to get someone who is qualified to tutor statistics. One-on-one tutoring runs $13.50/hr, but apparently there are a few ways to get the fee waived.
http://www.utexas.edu/student/utlc/tutoring/appointment_tutoring.php

There is also free *statistics consulting*. Here is the link: http://ssc.utexas.edu/consulting/free-consulting

The methods and statistics component involves four exams and is worth 215 points. The first exam will cover methods and is worth 35 points; the next two will cover statistics and are each worth 40 points. The final exam is a comprehensive statistics exam (does not cover methods) and is worth 100 points.

Grades: Except for the four exams, the class is NOT graded on a curve. Thus, in principle, everyone in the course could earn an "A". Research has indicated that absolute grading, as opposed to grading on a curve, encourages cooperation rather than competition because your course grade cannot benefit from poor performance on the part of your classmates. The exams are curved in a manner that has become standard for math, chemistry, and physics classes. The top three scores are averaged, and then the difference between this average and a perfect score is added to everyone's score. For example, if the average of the top three scores on the 2nd exam is a 35, then everyone in the class receives an additional 5 points. **There is no extra credit and there are no makeup exams.**

A = 319.6 – 347 pts
A- = 308 – 319.59
B+ = 295.8 – 307.39
B = 284.2 – 295.79
B- = 272.6 – 284.19
C+ = 261 – 272.59
C = 249 – 260.99
C- = 237.4 – 248.99
D+ = 225.4 – 236.99
D = 213.8 – 225.39
D- = 202.2 – 213.79
F = 0 – 202.19

Out of respect for your classmates, please turn off or do not bring to class noise-emitting electronic devices. These include beepers, cell phones, and watch chimes.

Notice about Disabilities:

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY.

Scholastic Dishonesty:

You are expected to do independent work on all exams and papers. Read the information on this website carefully, as ignorance of these UT rules is not a defense: http://deanofstudents.utexas.edu/sjs/academicintegrity.html. Your TAs will cover this critical issue in some depth in lab. However:

Students who violate University rules on scholastic dishonesty will be referred to the Office of the Dean of Students, Student Judicial Services. This office (and not your instructor) will resolve the case. Although the University of Texas at Austin does not have a formal Honor System, by enrolling in this class you are agreeing to abide by certain rules and regulations. You will abide by the Honor System that is set in place by the McCombs School of Business. Specifically, by enrolling in this course, you vow not to lie, cheat or steal, or commit any act of fraud, nor will you tolerate those who do. Furthermore, by enrolling in this class, you are agreeing that violation of any of these principles may result in your dismissal from the University.

Rules and regulations:

Changes to paper deadlines, exam dates, etc. are announced in class. You are responsible for announcements that are made in class. Due to the inevitable and unavoidable problems that are associated with electronic mail, your all-knowing instructor cautions you not to rely on this unreliable method of communication. That said, he will send out email announcements. However, all official class business will be conducted during lecture and lab. If you miss a lecture or lab, you are responsible for determining what you missed.

Psychology Departmental Regulations:

The Psychology Department will drop all students who do not meet the following prerequisites: PSY 301 with a C or better; Math 302 or a higher level mathematics course; and a major in Psychology.

University Regulations:

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Mental Health:

* The UT Counseling and Mental Health Center (CMHC): http://cmhc.utexas.edu/;

- --For information about students with urgent needs : http://www.cmhc.utexas.edu/talktosomeone.html
- --CMHC's 24/7/365 Telephone Counseling Line: 471-CALL/2255;
http://www.cmhc.utexas.edu/24hourcounseling.html

- --To find out about making an appointment: http://cmhc.utexas.edu/appointments.html
- --For information about our Be That One Suicide Prevention Program, check out http://www.cmhc.utexas.edu/bethatone/

* Behavior Concerns Advice Line- Concerned about someone on campus?
BCAL provides a central resource for UT faculty, students, and staff who may have concerns about the behavior or well-being of another member of the campus community. BCAL is available 24 hours a day, seven days a week. For more information contact 512-232-5050 or www.utexas.edu/safety/bcal

Tentative Lecture and Reading Schedule (some changes are inevitable, but any changes will be announced at least a week in advance)

Week of...	Reading and exam schedule	Topics to be covered
Jan 16	SL chaps 1& 2	Introduction/Syllabus
Jan 24	SL chap 3	Reasoning/Theory
Jan 31	SL chaps 4&5	Variables/Control
Feb 7	SL chaps 6&7	Artifacts/Design
Feb 14	**Exam I on Tues (does not cover GW)** GW chaps 1&2	Stats intro/Freq Distributions
Feb 21	GW chaps 3, 4, & 5	Central Tendency/ Variance/z-scores
Feb 28	GW chap 6 (skip 6.4) & 7	Probability/Hypothesis Testing I
Mar 7	GW chaps 8 (skip 8.2, 8.7), 9 (skip 9.3)	Hypothesis Testing II, Introduction to t-test
Mar 14	Spring Break	R & R
Mar 21	**Exam II on Tues** GW chap, 10, 11, & 12 (and go back and read 8.2, 8.7, & 9.3)	The t test for independent and related samples, Conf Intervals/Effect size
Mar 28	GW chap 13	ANOVA
Apr 4	GW Chap 15	Two-factor ANOVA
Apr 11	GW chap 18	Chi square goodness of fit and test of

			independence
Apr 18	GW chap 19 (and 6.4)		Binomial distribution, sign test, CI of a proportion
Apr 25	GW chap 16	**Exam III on Thurs**	Correlation
May 2	No reading		Class presentations

Final exam day and time: http://registrar.utexas.edu/schedules/109/finals/index.html