Introduction to Statistics

PSY 200 – Spring 2015

MWF 10:10-11:00AM

Hill Hall 311

**Instructor:** Dr. Erin M. Buchanan, Ph.D.

**Office Hours:** MW: 11:00-12:20PM

**Office:** Hill Hall 214-D

**Lab:** Hill Hall 460

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**Recommended Book**

Nolan, S.A. & Heinzen, T.E. (2014). *Statistics for the behavioral sciences, Third Edition*. Worth Publishers: New York, NY. ISBN: 978-1-4641-0922-5.

The textbook was chosen to provide an overview of the major topic areas of the course and will serve as a springboard for class lecture and discussion. This course covers a wide variety of topic areas, most worthy of their own course. We will not be able to review every topic presented in the text in class. You are responsible for all the information in the text as well as the additional information presented in class.

**Please note:** we are not using the online portal this semester.

**Software (required)**

All software for this course is free. You will need to install the software on your personal computer. You can also access this software set up in the Psychology and Education Computer Labs in Hill Hall.

* *R* – <https://cran.r-project.org>
  + *R* is a free computational program/language that will help you perform the statistics in this course.
* *R* Studio – <https://www.rstudio.com>
  + *R* Studio is a graphical overlay for *R* that helps you understand and use *R*.

**Course Description and Objectives**

This is a survey course over topics of the use of statistics in psychology, which will cover basic descriptive statistics (averages, modes, medians) and inferential statistics (z-tests, t-tests, ANOVAs). The course will cover the following department learning outcomes for undergraduates:

**Improve your knowledge base in psychology.** By the end of the course, you should be able to understand the use of statistics in psychology and be able to comprehend other’s use of statistics (in research papers, articles, etc.) This outcome will be assessed through in-class exams and class activities.

**Knowledge about applications of statistics to psychology.** By the end of this course you should be able to apply this understanding to work in psychology (e.g., How do experimenters test their hypotheses?). This outcome will be assessed through class activities, in-class exams, and homework.

**Knowledge of scientific methods and your ability to evaluate evidence.** By the end of this course you should have a better understanding of our knowledge of psychology is obtained and evaluated, assessing the conclusions drawn from empirical studies.This outcome will be assessed through homework and the research project.

**Grades**

I will post grades online for your convenience. It is your responsibility to inform me if you feel I have made an error in grading or recording your grades. I do my best to ensure that everyone is graded fairly and recorded correctly, but I do occasionally make mistakes. Please check your grades periodically throughout the term. If you see any inconsistencies, please let me know.

**Class Quizzes (15% of grade)**. Class quizzes on Blackboard are available to take only on the date we are in class. They will cover the important chapter points and will help you study for exams. Please note that you can take the quizzes **twice** until you are satisfied with your score. The quizzes are automatically graded and refresh with new examples for each try.

**Homework (25% of grade).** Statistics is a hands-on course. The exams will mostly cover theoretical information and what you “would do” if given the data and computer to test a hypothesis. Therefore, homework is absolutely necessary to give you the practice you need. Check the course schedule for when homework is due. You should keep up with the homework as we do each topic, otherwise it will get confusing. Again, these assignments are on Blackboard, which can be taken twice until the due date.

**Research Project (10% of grade).** Learning about statistics is easier if you apply it to a real research topic. You will apply what you’ve learned in class to real research publications. This project is broken down into small assignments throughout the semester. **Absolutely do not copy from my notes, the book, Wikipedia, etc. for the research project. You can cite the articles you are using, but everything should be in your own words. You will get an F in the course.**

**Exams (~50% of grade).** There will be 4 in-class exams throughout the semester. Exams will be closed-book, closed-note, individual effort exams that will consist of essays, short answer questions from the lecture material, and randomly selected multiple choice questions from the homework. Make-up exams will be subject to the Make-Up Policy below. Exams are not “cumulative”, but statistics by nature is not something you can brain dump after each exam.

**Grade designations.** A: 90%, B: 80%, C: 70%, D: 60%, F <60%

**Plus/Minus.** Plus/minus designations *may* be used when in the students favor.

## Course Policies

**Late policy.** I understand that students do have lives outside of class and school. However, the real world has just as many deadlines as school does. I do accept late homework with a reduction on the grade of 25% each day. If you have a University excuse, you can extend that deadline for the number of days that you have excused. There is *plenty* of time to get the short homeworks done. Don’t let this get away from you!

**Internet access.** Internet access is available free to students in most dorms and in the library. Information about university email and Internet access is available in the library.

**Attendance.** It is in your best interest to attend regularly because material presented in class (that will not be in the text) will be on your exams. You must be in class to take quizzes.

**Make-Up Policy.** University Approved: If you are absent the day of an exam, you have 48 hours from the time you are *capable* of contacting me to get a hold of me **or you will not be allowed to take the make-up**. (e.g. If you get in a car accident and are in a coma, you have 48 hours after you wake up to email or call me). You must have a valid excuse in order to be allowed to schedule the make-up. Valid excuses include illness, university-sanctioned travel, and observance of a religious holy day. Documentation of any absence will be **required**. If you miss a make up time, 10% of the grade you make on the test will be deducted for each make up time.

Non-University approved: For all things not university excused, you must get in touch with me 48 hours *before* the exam. This way we can schedule an earlier exam or work out a compromise on how to make up the exam. Not all excuses will be accepted; they will be determined on a case by case basis (e.g. I want a 3 day weekend versus I’ve had scheduling problems with work.)

**Disabilities statement.** To request academic accommodations for a disability, contact the [Director of the Disability Resource Center](http://www.missouristate.edu/disability), Carrington Hall, Room 302, 417-836-4192 or 417-836-6792 (TTY). Students are required to provide documentation of disability to the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the [Learning Diagnostic Clinic](http://psychology.missouristate.edu/ldc), which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, 417-836-4787.

**Statement about academic misconduct and consequences.** Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. Students are responsible for knowing and following the university’s student honor code, [Student Academic Integrity Policies and Procedures](http://www.missouristate.edu/policy/Op3_01_AcademicIntegrityStudents.htm) and also available at the Reserves Desk in Meyer Library. Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy.

**Nondiscrimination policy.** Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Institutional Equity and Compliance, Park Central Office Building, 117 Park Central Square, Suite 111, 417-836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor’s Department Head. [Please visit the OED website.](http://www.missouristate.edu/equity/)

**Classroom behavior policies.** You are NOT expected to know the material presented in this course before it is presented either in class, in the textbook, or in another assigned resource. You ARE expected to read the assigned sources, engage the material, ask questions about things you don’t understand, and participate in class activities/ discussions by sharing relevant comments, ideas, and opinions. In other words, you are expected to put effort into engaging the material in this course. This course will be more instructive and enjoyable for everyone if you actively participate in class. I expect everyone to behave appropriately in class and show respect for one another. Please come to class on time, retain private conversations for outside of class, and remember to turn off electronic devices (cell phones, pagers, day planner alarms, etc.). **PLEASE NOTE:** I am a squirrel. I am easily distracted by students talking (during lecture not work periods), and it is distracting to other students. If you have a question or wish for me to repeat something, please ask. Otherwise, disruptive students will be asked to leave.

**Emergency response.** At the first class meeting, students should become familiar with a basic emergency response plan through a dialogue with the instructor that includes a review and awareness of exits specific to the classroom and the location of evacuation centers for the building. All instructors are provided this information specific to their classroom and/or lab assignments in an e-mail prior to the beginning of the fall semester from the Office of the Provost and Safety and Transportation. Students with disabilities impacting mobility should discuss the approved accommodations for emergency situations and additional options when applicable with the instructor. For more information go to <http://www.missouristate.edu/safetran/51597.htm> and <http://www.missouristate.edu/safetran/erp.htm>.

**Religious accommodation.** The University may provide a reasonable accommodation based on a person’s sincerely held religious belief. In making this determination, the University reviews a variety of factors, including whether the accommodation would create an undue hardship. The accommodation request imposes responsibilities and obligations on both the individual requesting the accommodation and the University. Students who expect to miss classes, examinations, or other assignments as a consequence of their sincerely held religious belief shall be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious observances on which they will be absent by submitting a [Request for Religious Accommodation Form](http://www.missouristate.edu/equity/47491.htm) to the instructor by the end of the third week of a full semester course or the end of the second week of a half semester course.**Course Calendar**

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| Week | Dates | Topic | Chapter | Assignments |
| 1 | Jan 18-20 | Introduction to Statistics | C1 | Q1, H1 |
| 2 | Jan 23-27 | Frequency Distributions | C2 | Q2, H2 |
| 3 | Jan 30-Feb 3 | Graphs, Graphs, Graphs | C3 | Q3, H3 |
| 4 | Feb 6-10 | Central Tendency  Review | C4 | Q4, H4 |
| 5 | Feb 13-17 | Exam 1  Sampling and Probability | C5 | Q5, H5 |
| 6 | Feb 20-24 | President’s Day Holiday Feb 20  Z-Scores | C6 | Q6, H6  RP 1 |
| 7 | Feb 27-Mar 3 | Hypothesis Testing Z-Scores | C7 | Q7, H7 |
| 8 | Mar 6-10 | Confidence Intervals, Effect Size, Power | C8 | Q8, H8 |
| 9 | Mar 11-19 | Spring Break Holiday |  |  |
| 10 | Mar 20-24 | Review  Exam  Single Sample t | C9 |  |
| 11 | Mar 27-31 | Single Sample t | C9 | Q9, H9  RP 2 |
| 12 | Apr 3-7 | Paired Sample t | C10 | Q10, H10 |
| 13 | Apr 10-14 | Independent t  Spring Holiday Apr 14 | C11 | Q11, H11 |
| 14 | Apr 17-21 | ANOVA | C12 | Q12, H12 |
| 15 | Apr 24-28 | Review  Exam  Correlation | C15 |  |
| 16 | May 1-5 | Correlation  Regression | C15  C16 | Q15, H15  Q16, H16  RP Final |
| 17 | May 8-10 | Chi-Square | C17 | Q17, H17 |
|  | May 15 | Exam 4 8:45-10:45 |  |  |

* **The above calendar always changes and will be updated on Blackboard under Schedule.**
* **Quizzes are always due the last day we finish a chapter.**
* **Homeworks are always due one week after we finish a chapter, *except* for the last chapter, which is due on test day.**