

~ Course Syllabus ~

Course Instructor: Aaron S. Johnson

Office Location(s): [KTCH 409](#) and [KTCH 117A](#) (computer lab)

Office Phone: 303-735-0591 - *don't leave voicemail messages*

Office Hours: Tuesdays 9:30-11:00 (in KTCH 117A) and Fridays *by appointment only*

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- Class meets daily from 8:00am to 9:15am in Hale Science; Room 230 ([HALE 230](#))
- *Course Description:* Introduces students to quantitative analysis of social phenomena. Emphasizes understanding and proper interpretation of graphs; measures of central tendency, dispersion, and association; and the concept of statistical significance. Assumes students have limited computer and mathematical background.
- *Credit Hours:* 3
- *CULearn module:* SP2009:B1:SOCY:2061 - 003: Intro To Social Stats

Course Overview

A great deal of sociological research uses surveys, public opinion polls, censuses and other sources of quantitative data to document, describe, and explain a wide range of social phenomena. Due to this heavy reliance on quantitative data, logic and methods, students in the social sciences must therefore have a solid understanding of statistics in order to comprehend, critique and eventually conduct quantitative social research. More so, it is believed that an introductory statistics course should also prepare students, regardless of academic major or personal interests, for a career in today's "age of information" as well as raise an awareness of statistics in everyday life. So while it is true that many of you will never conduct a social scientific study of your own, it is hard to imagine that any college graduate in today's society will never encounter data or statistical results over the course of their career. Statistics affect almost every aspect of our academic and personal lives – from tuition rates and class sizes to the cost of your iPod and the legal drinking age – statistics have affected us all in various untold ways.

I have designed the course to introduce you to the fundamental terminology, concepts, calculation techniques, interpretation and communication of the descriptive and inferential statistics most commonly encountered in social scientific research. The short first unit is meant to orient you to the course and the spreadsheet program *Excel*, as well as quickly review the fundamentals of quantitative methods, logic and reasoning. The second unit introduces the terminology, concepts and calculations that allow large data sets to be represented as one of several parsimonious descriptive statistics, including those used to describe central tendency (mean, mode, median), variance and dispersion (standard deviation, variance, range and skew) and bivariate relationships (correlation). In addition, you will learn to depict such using tables (frequency distributions) and charts (histograms and scatter plots). The third unit introduces the fundamental terminology, concepts and logic of inference, the foundation of statistical reasoning, including probability, the "normal" distribution and hypothesis testing. Finally, the fourth and last section of the course, introduces several basic statistical analyses (including t-tests, ANOVA, linear regression and Chi-square) used to make specific inferences about a population based upon the information contained within a sample.

I believe that people learn by interacting with the skills and knowledge they are trying to learn. This means "trying on" the skills and knowledge and seeing how well they fit, making adjustments, and trying again until they understand and can share the skills and knowledge. Some people call this mastery learning or constructivist learning or other labels. For me, the main point is that learning is a participatory process, not a passive one.

Brief Course Calendar

The “brief course calendar” below provides lesson topics and due dates only. You will also need to check CULearn regularly for updates to the full course calendar. Here you will find an updated and detailed list of lesson readings as well HW due dates and exams.

	<u>Tuesday</u>	<u>Thursday</u>
Week 1	(1) <u>Jan 13</u> <i>Introduction to Statistics & Excel</i>	(2) <u>Jan 15</u> <i>The Foundations of Social Science</i> Due: Basic Math Review
Week 2	(3) <u>Jan 20</u> <i>Conceptualization, Operationalization & Measurement</i>	(4) <u>Jan 22</u> <i>Catch-up & Review</i> Due: HWs 1 and 2
Week 3	(5) <u>Jan 27</u> Exam 1	(6) <u>Jan 29</u> <i>Describing Central Tendency</i>
Week 4	(7) <u>Feb 3</u> <i>Central Tendency</i>	(8) <u>Feb 5</u> <i>Describing Variance & Dispersion</i> Due: HW 3
Week 5	(9) <u>Feb 10</u> <i>Describing Variance & Dispersion</i>	(10) <u>Feb 12</u> <i>Describing Data w/ Tables and Charts</i> Due: HW 4
Week 6	(11) <u>Feb 17</u> <i>Describing Data w/ Tables and Charts</i>	(12) <u>Feb 19</u> <i>Describing Bivariate Relationships</i> Due: HW 5
Week 7	(13) <u>Feb 24</u> <i>Describing Bivariate Relationships</i>	(14) <u>Feb 26</u> <i>Unit 2 Catch-up & Review</i> Due: HW 6
Week 8	(15) <u>Mar 3</u> Exam 2	(16) <u>Mar 5</u> <i>Probability & Normal Curve</i> <i>(Xs and Zs and Ps, Oh My!)</i>
Week 9	(17) <u>Mar 10</u> <i>Probability & Normal Curve</i> <i>(Xs and Zs and Ps, Oh My!)</i>	(18) <u>Mar 12</u> <i>The 7 Steps of Hypothesis Testing</i> Due: HW 7
Week 10	(19) <u>Mar 17</u> <i>Unit 3 Catch-up & Review</i> Due: HW 8	(20) <u>Mar 19</u> Exam 3
	☺ Spring Break ☺	☺ Spring Break ☺
Week 11	(21) <u>Mar 31</u> <i>t-Tests for Dependent Means</i>	(22) <u>Apr 2</u> <i>t-Tests for Independent Means</i>
Week 12	(23) <u>Apr 7</u> <i>ANalysis Of Variance</i> Due: HWs 9 and 10	(24) <u>Apr 9</u> <i>ANalysis Of Variance</i>
Week 13	(25) <u>Apr 14</u> <i>Testing “r”</i> Due: HW 11	(26) <u>Apr 16</u> <i>Linear Regression</i> Due: HW 12
Week 14	(27) <u>Apr 21</u> <i>Linear Regression</i> Due: HW 13	(28) <u>Apr 23</u> <i>Linear Regression</i>
Week 15	(29) <u>Apr 28</u> <i>Chi-Square</i> Due: HW 14	(30) <u>Apr 30</u> <i>Unit 4 Catch-up & Review</i> Due: HW 15
Finals Week	(31) <u>May 7 (7:30am to 10:00am)</u> Final Exam	

Course Goals & Objectives

Two overarching goals inform this course. First, it is expected that upon completion you will have acquired the skills necessary to be considered “statistically literate”. That is, you will have acquired an understanding of statistics that allows you to consume the quantitative information you are inundated with on a daily basis, both in other courses as well as your personal life, to think critically about it, and make good decisions based on that information. The second goal of this introductory statistics course is provide you with the knowledge and skills necessary to comprehend, critique and eventually conduct quantitative social scientific research.

More specifically, you’ll be assessed and graded upon your capacity to demonstrate an “introductory level”...

1. understanding of the terminology, notation, concepts and logic of social scientific research and statistics.
2. ability to employ the fundamental concepts of quantitative reasoning to determine the appropriate statistical analysis, given a particular set of data and “real world” circumstances.
3. ability to use *Excel* to conduct several common social statistical analyses.
4. ability to state and test hypotheses, and make a conclusion regarding the significance of several common social scientific statistics.
5. ability to interpret and communicate the results of statistical analyses in terms of the variables involved as well as associated “real world” questions and problems.

Course Requirements

Required Text: Course lectures, readings and assignments will be derived from the material in the book ***Statistics for People Who (Think They) Hate Statistics: The Excel Edition*** by Neil Salkind (published in 2007 by Sage Publications of Thousand Oaks, CA. ISBN: 1-4129-2482-0). You are required to have regular access to this book. Fortunately, it has been used recently and many used copies should be available around campus and in local bookstores. Unless you are already very proficient at using *Microsoft’s* spreadsheet program *Excel*, you’ll want to be sure you’ve got the “*Excel Edition*” of the book. Be aware that other similar editions exist.

Computer Requirements: In addition to the text, you are also required to have regular access to a computer that has on it *Microsoft’s* spreadsheet program *Excel*, (both the 2003 and 2007 editions will be used in class) and an add-in called the “Data Analysis ToolPak.” *Excel* will be used extensively to complete your assignments. In addition to personal computers and the campus computer labs, you should be aware that laptop computers are available to be checked out in the UMC and Norlin library.

Communication Requirements: I use a combination *CULearn* and email to communicate important information and distribute course materials to the class. You are required to check all such means of communication regularly (i.e. daily) throughout the course. I will send all emails to your university-established “WebMail” address only. If you prefer to have email sent to another account it is your responsibility to set-up your CU account to forward emails to the account of your choice.

- * You may be administratively dropped at the discretion of the course instructor and/or department if you have not met the course prerequisites.

Attendance & Participation

Attendance and participation is MANDATORY! It is very unlikely that you’ll do well or even pass this class if you do not regularly attend (i.e. miss only 1 or 2 class meetings) and fully participate in the class (i.e. complete all readings and the HWs). I cannot stress strongly enough the importance of buckling down for the next 15 weeks and staying fully engaged in class; due to the cumulative nature of the course material, “catching up” is absolutely necessary yet very difficult!

Because I believe that the “natural consequences” for not attending and participating in class are sufficient motivation for most students, I do not formally take or keep record of your attendance, nor do I award points for simply showing up in class. Thus, there is no need to provide me with any sort of official “excuse” for missing class, although emails with simple explanations are appreciated (but not required).

However, should you miss a class, **you are still responsible for all announcements and material covered in the class missed.** I will only discuss the question “what did I miss?” in office hours and briefly before or after class (that is, not by email), and encourage you to contact your classmates for such information. **You must attend at least once during the first week of class to guarantee your place in it.** If you fail to do so, you may be administratively dropped at the discretion of the course instructor and/or department.

Homework Assignments & Exams

Over the duration of the course, you will be expected to complete 15 (relatively short) homework assignments worth 3 points each, which in all will comprise 45% of your course grade. Homework assignments will generally emphasize the *Excel* procedures and/or manual calculations necessary to produce the statistic(s) covered in class. All will be made available via *CULearn* as an *Adobe Acrobat* (.pdf) and/or *Excel* (.xls) file.

In addition to the reading and homework assignments, you should expect 4 examinations, used to assess your understanding of the course material. While the homework assignments will tend to focus on the mastery of the statistical techniques and procedures, the exams will generally assess your understanding of the terminology, concepts and logic of the course material and your ability to interpret and communicate the results of given statistical analyses. Due to the nature of the course material, all exams are considered cumulative. Exams are progressively weighted in recognition of this cumulative nature of the course and to allow you a chance to “get your head into the course” before final grades are determined. In all, the exams will comprise 55% of your course grade.

Scoring Summary

Unit 1 Exam	=	5%
Unit 2 Exam	=	15%
Unit 3 Exam	=	15%
<u>Unit 4 Exam (The Final)</u>	=	<u>20%</u>
Exam Total:	=	55%
+		
15 HWs (at 3% each)	=	45%
Course Total	=	100%

Tentative Grade Range

	A (95-100)	A – (90-94)
B + (87-89)	B (83-86)	B – (80-82)
C + (77-79)	C (73-76)	C – (70-72)
D + (67-69)	D (63-66)	D – (60-62)
	F (<60%)	

* *The course instructor reserves the right to adjust the final grade ranges based upon the final distribution of student scores*

Your scored work will be returned to you in class or via *CULearn*. Please be sure to keep all your scored exams and homework assignments in the event of grade dispute. Little, if anything, can be done to resolve such disputes without referring to the exam or homework score in dispute. In the case that a disputed exam or homework score cannot be confirmed by referring to the original, the score on record will stand. A grader may be used to score student work.

Late Work

My official late work policy is as follows: 1) Homework assignments are due strictly on the day and *by the time* announced. 2) Homework submitted by the due date and time will be award a 1 pt “on time” bonus. 3) **Homework assignments will not be accepted for any reason after the completion of the associated unit.** 4) All exams must be taken in class on the day they are scheduled.

*** Be sure to consult the course calendar posted to CULearn for updated and precise due dates and times**

However, with that being said, I am also aware of the rather rigorous pace of the course, especially given its difficult nature. So, as they say, “never say never”. Obviously, there are some extremely good reasons for submitting a homework assignment late or missing an exam, and if you believe that, your situation is such we should talk about it. Be aware however, what I consider “good reasons” for granting extensions include those such as the accommodations listed below, a serious illness (and I’ll ask you for a doctor’s note), the illness of a dependent family member as your child, or a death in your family. What I do not consider “good reasons” for granting extensions include computer or printer problems, malfunctioning alarm clocks or traffic. In any case, *any and all exceptions to this policy* (i.e. extensions and alternative exam sessions) must be discussed with me in person and preferably *before* the extension is needed, and also summarized by you in writing.

Honor Code

“On my honor as a University of Colorado at Boulder student, I have neither given nor received unauthorized assistance on this work”

Please, let's make this non-issue. All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy. 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 (honor@colorado.edu, 303-725-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Additional information on the Honor Code can be found at <http://www.colorado.edu/policies/honor.html> and at <http://www.colorado.edu/academics/honorcode/>

Student Accommodations

Disabilities: If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services no later than Thursday, June 5 so that your needs may be addressed. Disability Services determines accommodations based on documented disabilities. For more information call 303-492-8671, visit Willard 322 or visit <http://www.Colorado.EDU/disabilityservices>.

Religious Observances: CU's and my personal policy regarding religious observances is to make every effort to reasonably and fairly deal with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or attendance. In order that I may do so, please submit to me a letter detailing any foreseen conflicts no later than Thursday, June 5 so that your needs may be addressed. For additional information visit http://www.colorado.edu/policies/fac_relig.html and <http://www.interfaithcalendar.org>

University-sponsored athletics and activities: My policy regarding athletics and other University-sponsored activities (and in some cases work schedules) is to make every effort to reasonably and fairly deal with all students who, due to such, have conflicts with scheduled exams, assignments or attendance. In order that I may do so, please submit to me a letter detailing any foreseen conflicts no later than Thursday, June 5 so that your needs may be addressed. For additional information visit <http://www.colorado.edu/FacultyGovernance/MOTRES/bm2-0301.html>.

Classroom Behavior

As I see it, this too should be a non-issue. We're all adults, here because we all choose to be so. My basic policy is respect and responsibility. Respect others' right to learn. You and I both have responsibility for maintaining an appropriate learning environment. If you who fail to adhere to such behavioral standards you may be subject to discipline. I have the professional responsibility to treat all of my students with understanding, dignity and respect, to guide classroom discussion and to set reasonable limits on the manner in which they and their students express opinions. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender variance, and nationalities. Class rosters are provided to me only with your legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information go to <http://www.colorado.edu/policies/classbehavior.html> and http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code

Discrimination and Sexual Harassment

The University of Colorado's policy on amorous relationships applies to all students, staff and faculty. Any student, staff or faculty member who believes s/he has been the subject of discrimination or harassment based upon race, color, national origin, sex, age, disability, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Judicial Affairs at 303-492-5550. Information about the ODH can be obtained at <http://www.colorado.edu/policies/discrimination.html> and <http://www.colorado.edu/odh>