

Psychological Statistics (PSYCH 301 Section 3)
Winter Term 2009
MW 12:00 – 1:15 PM; F 12:00 – 12:50
341 MARB

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Course Description & Objectives

The purpose of this course is to explore psychological statistics while gaining proficiency at understanding and analyzing data. After this course, students will be able to: 1) identify key characteristics of variables in a data set; 2) graph data; 3) calculate statistical analyses by hand; 4) understand the process of and purpose behind hypothesis testing; 5) understand key differences between inferential statistics; and 6) understand how to choose the appropriate statistical analysis.

Text and Materials

1. Key, C.W. (2008). *Simple stats: A practical guide to statistical theory and computation in the behavioral sciences, 2nd ed.* Provo, Utah: Brigham Young University Press.
(ISBN: 978-0-74093-129-1) **THIS TEXT IS REQUIRED AND MUST BE BROUGHT TO CLASS.**
2. Howell, D.C. (2007). *Fundamental statistics for the behavioral sciences, 6th ed.* New York: Wadsworth Publishing. **THIS TEXT IS OPTIONAL.**
(ISBN: 978-0-49509-900-0)
3. Scientific Calculator (needs square root function – NO PHONES OR GRAPHING CALCULATORS)
THIS IS REQUIRED AND MUST BE BROUGHT TO CLASS.

OTHER MATERIALS WILL BE POSTED ON BLACKBOARD AND HANDED OUT IN CLASS. IT IS YOUR RESPONSIBILITY TO HAVE ACCESS TO BLACKBOARD AND UNDERSTAND HOW TO RETREIVE THESE MATERIALS. CLASSROOM MATERIALS WILL ONLY BE MADE AVAILABLE THE DAY THEY ARE PASSED OUT UNLESS YOU HAVE AN EXCUSED ABSENCE.

Course Assignments

There are two types of assignments in this course: exams and extra credit.

Exams

There will be four examinations in this course. The exams will be **in the testing center** and are scheduled on the class schedule at the end of the syllabus. Each is worth 100 points and will cover the chapters listed in the schedule. These will consist of multiple formats, likely including (but not limited to) multiple choice, computation, fill in the blank, and short answer.

*Exam Make-Up Policy: Only **one** make-up opportunity will be allowed for the exams. Students make take ONE exam late without an excuse (a university excused absence or doctor's note that spans the entire duration of the exam). The exam will be an alternate form and must be taken **within two days** of the last day of the regular exam period. The score will be reduced by 1/2 (**take your score and multiply it by 50%**).*

Extra Credit

A maximum of **four** extra credit points can be earned. Extra credit may be earned by:

1. *Participation in research approved by the BYU IRB (institutional review board).* This research must be completed by signing up through the **SONA system** (byu.sona-systems.com). Extra credit will only be given when the participant signs up on the SONA system and credit this course. Each credit earned on SONA is worth 2 points. You must apply the research participation to this course on SONA to receive points.
2. *Writing multiple choice exam questions.* Questions must be accurate, have the correct answer marked, be formatted in a manner consistent with actual exam questions, and have distracters (the other options) that seem plausible to students unfamiliar with the material. Each question is worth a maximum of 0.5 points. A maximum of 10 questions may be submitted (in the eventuality that questions do not receive full credit).

*Extra Credit Policy: Extra credit is offered at the instructor's discretion. Extra credit points earned will be added to the total points earned in the course. No extra credit will be offered that is not available to all students in the class. Requests for extra consideration at the end of the term will not be considered. All extra credit must be submitted **before the last day of class**.*

Grading Policies and Procedures

Students may receive a total of 400 points. These points come from the exams:

<u>Source</u>	<u>Points</u>		<u># of Times</u>		<u>Total Points Possible</u>
Exams	100	x	4	=	400

Grades will be assigned as follows:

A = 360 points or more

B = 320 – 359.999

C = 280 – 319.999

D = 240 – 279.999

E = 239.999 or below

*Grading Policy: **No rounding** will be offered. **No minuses or plusses** will be offered. BYU no longer offers the grade of UW. An unofficial withdrawal will become a grade of E. If you need to withdraw, please do so officially within the allotted timeframe.*

Classroom Policies and Procedures

There are a few policies regarding classroom expectations and procedures that are important to take note of:

1. **Attendance.** Though no points/penalties are explicitly assigned to class attendance, **success in this course does relate to class attendance.** There is a strong correlation between class attendance and grades in this course. I am not kidding or trying to trick you into coming to class – students who attend do better than those who do not (though I am not making a grade guarantee). There is a lot of material to cover in this course in a relatively short period. Because of this, class meetings will supplement and clarify the reading, not just review it. Students are strongly encouraged to collaborate in and outside of class to assist one another in the learning process.
2. **Homework policy.** There are no graded homework assignments in this course. However, there is ample opportunity to complete questions and problems at home to assist in learning the material. This additional help will come from the following sources:
 - a. *End of chapter questions.* The questions that follow each chapter are in formats that are likely to appear on the exam. Though no actual exam questions are taken from the textbook questions, both are written by me; thus, they are likely to be helpful in exam preparation. Select answers are given at the end of the textbook (Appendix H); other questions can be explicitly answered in class or during office hours if asked.
 - b. *In-class handouts.* Word problems and computation exercises will be handed out in class. These are available in class only. If you are absent, it is expected that you meet with a classmate to get these materials.
 - c. *Appendices.* Appendices are often overlooked. I have created appendices in the book designed to assist you with the core material and prepare you for the exams. This includes an appendix on symbols (Appendix A), situations to practice figuring out which statistic would be required and explanations of the answers (Appendix D), additional word problems with worked out answers (Appendix E), an overview of the key information for each inferential statistic (Appendix F), and a series of questions to help you determine which statistic to use (Appendix G). All of these appendices represent the opportunity for additional study outside of class.
3. **Exam review and challenge policy.** Exams will not be handed back for students to keep. However, class time will be devoted to reviewing the exams after they are graded. We will review the correct answers and understand where mistakes were made. Though I want students to review their grades critically, no challenges to grades will be discussed in class. However, these challenges are welcome during office hours or by appointment. It is always possible that grades have been miscalculated or you have lost points that you should not have, and I encourage you to review your grades with me in private.
4. **The “come see me” policy.** I strongly encourage students to visit with me if you have any questions or concerns about this course. I hold office hours twice per week, as does the TA. I have other times available as well – if you cannot come to office hours, send me an e-mail proposing a few times that you can come in and we will find a time that works well for both of us. For this class more than many others, you may find yourself struggling with the material. PLEASE don't hesitate to visit with me and make sure that you get the help you need.

Learning Outcomes

Each program at BYU has developed a set of expected student learning outcomes. These will help you understand the objectives of the curriculum in the program, including this class. To learn the expected student outcomes for the programs in the psychology department and college go to <http://learningoutcomes.byu.edu> and click on the College of Family, Home and Social Sciences and then the psychology department. We welcome feedback on the expected student learning outcomes. Any comments or suggestions you have can be sent to FHSS@byu.edu.

Honor Code Standards

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university.

Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and my own expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

Preventing Sexual Discrimination or Harassment

Sexual discrimination or harassment (including student-to-student harassment) is prohibited both by the law and by Brigham Young University policy. If you feel you are being subjected to sexual discrimination or harassment, please bring your concerns to the professor. Alternatively, you may lodge a complaint with the Equal Employment Office (D-240C ASB) or with the Honor Code Office (4440).

Students with Disabilities

If you have a disability that may affect your performance in this course, you should get in touch with the office of Services for Students with Disabilities (1520 WSC). This office can evaluate your disability and assist the professor in arranging for reasonable accommodations. If you feel that this may apply to you, please contact them ASAP so that accommodations can be made in a timely manner.

Class Schedule¹

DATE	DAY	TOPIC	CHAPTER
1/4	M	Syllabus; Class Overview	1
1/7	W	Intro to Stats	1
1/9	F	Displaying Data	2
1/12	M	Measures of Central Tendency; Measures of Dispersion	3, 4
1/14	W	Normal Distribution, z-Scores	5
1/16	F	Normal Distribution, z-Scores	5
1/19	M	<i>HOLIDAY – NO CLASS</i>	
1/21	W	EXAM REVIEW	1-5
1/23	F	<i>EXAM 1 – Thursday, 1/22 to Tuesday, 1/27 (CH 1-5)</i>	EXAM
1/26	M	<i>EXAM 1 – Thursday, 1/22 to Tuesday, 1/27 (CH 1-5)</i>	EXAM
1/28	W	Probability	6

1/30	F	Probability	6
2/2	M	Hypothesis Testing	7
2/4	W	Hypothesis Testing	7
2/6	F	Hypothesis Testing, Pearson Correlation	7, 8
2/9	M	Pearson Correlation, Other Correlations	8
2/11	W	Single Regression	9
2/13	F	Single Regression	9
2/16	M	HOLIDAY – NO CLASS	
2/17	T	Multiple Regression; Other Regressions	10
2/18	W	Other Regressions; MATH REVIEW	6, 8-9
2/20	F	EXAM REVIEW	6-10
2/23	M	<u>EXAM 2 – Saturday, 2/21 to Thursday, 2/26 (CH 6-10)</u>	EXAM
2/25	W	<u>EXAM 2 – Saturday, 2/21 to Thursday, 2/26 (CH 6-10)</u>	EXAM
2/27	F	One-Sample z & t	11
3/2	M	Confidence Interval	11
3/4	W	Related-Samples t	12
3/6	F	Related-Samples t	12
3/9	M	Independent-Samples t	13
3/11	W	Independent-Samples t	13
3/13	F	MATH REVIEW	11-13
3/16	M	One-Way ANOVA*	14
3/18	W	One-Way ANOVA*	14
3/20	F	One-Way ANOVA, Two-Way ANOVA*	14, 15
3/23	M	Two-Way ANOVA*	15
3/25	W	Two-Way ANOVA; Other ANOVAs*	15
3/27	F	EXAM REVIEW	11-15
3/30	M	<u>EXAM 3 – Saturday, 3/28 to Thursday, 4/2 (CH 11-15)</u>	EXAM
4/1	W	<u>EXAM 3 – Saturday, 3/28 to Thursday, 4/2 (CH 11-15)</u>	EXAM
4/3	F	Chi-Square Goodness-of-Fit	16
4/6	M	Chi-Square of Association	16
4/8	W	Effect Size & Power	17
4/10	F	Nonparametric & Additional Analyses	18, 19
4/13	M	EXAM REVIEW	14-19
4/15	W	READING DAY – NO CLASS	N/A

FINAL (4th) EXAM – CHAPTERS 14–19 IN THE TESTING CENTER, APRIL 15-22
NOTE THAT YOU WILL BE TESTED TWICE OVER CHAPTERS 14 AND 15

¹Please note that this schedule is subject to change by the instructor. Any changes in exam scheduling will be announced **IN CLASS** in advance of the exam date.

THIS SYLLABUS IS SUBJECT TO CHANGE WITHOUT NOTICE BY THE INSTRUCTOR. CHANGES WILL ONLY BE MADE TO AID THE CLASS IN ITS LEARNING OF COURSE TOPICS.