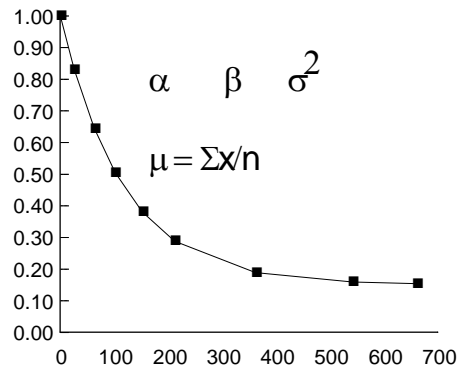


Statistics for the Social Sciences

PSYC 250

Spring 2010

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TR 1:00 to 2:30
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Course Description:

This course covers descriptive and inferential statistics in the design, analysis, and interpretation of social science research with practical application using computers in laboratory. The statistical methods to be covered include frequency distributions and graphing, measures of central tendency, measures of variability and correlation, t-tests, analysis of variance and several distribution-free tests. Prerequisites: MATH 101 or 105 and the introductory course in the student's major or permission of instructor.

This course will introduce you to methods of collecting, presenting, analyzing, and interpreting social science data. Statistics are tools for understanding data and for making rational decisions about the results of research. My goal for the course is to provide you with a well-stocked toolbox of statistical techniques that will aid you in both your professional and personal life. For each technique you should learn how to use that technique and, perhaps more importantly, when it is appropriate to use the technique. At the end of the semester you should be able to take a data set and a research question and identify and conduct the appropriate statistical analysis.



Required texts:

Gravetter, F. J. & Wallnau, L. B. (2010). *Statistics for the behavioral sciences* (8th ed.). Belmont, CA: Wadsworth.

You should bring the Gravetter and Wallnau text to every class and lab meeting. You may not need it every time, but when we need it you should have it with you.

You will also need a calculator to complete homework assignments and exams. This need not be an expensive statistical calculator; an inexpensive basic calculator will do just fine. You will find, however, that a square root key and a memory will be extremely valuable.



Tentative Semester Schedule, Lecture:

Week	Date	Topic	Readings from the G&W text
1	01/11	Syllabus	
	01/13	Introduction to Statistics	Chapter 1
	01/15	Introduction to Statistics	Chapter 1
2	01/18	MLK	
	01/20	Introduction to Statistics	Chapter 1
	01/22	Frequency Distributions	Chapter 2
3	01/25	Frequency Distributions	Chapter 2
	01/27	Central Tendency	Chapter 3
	01/29	Central Tendency	Chapter 3
4	02/01	Variability	Chapter 4
	02/03	Variability	Chapter 4
	02/05	Variability	Chapter 4
5	02/08	z-scores	Chapter 5
	02/10	z-scores	Chapter 5
	02/12	Exam 1	Covers chapters 1 – 4
6	02/15	z-scores	Chapter 5
	02/17	Probability	Chapter 6
	02/19	Probability	Chapter 6
7	02/22	Probability	Chapter 6
	02/24	Probability and Samples	Chapter 7
	02/26	Probability and Samples	Chapter 7
8	03/01	Probability and Samples	Chapter 7
	03/03	Introduction to hypothesis testing	Chapter 8
	03/05	Exam II	Covers chapters 5 - 7
9	03/08	Introduction to hypothesis testing	Chapter 8
	03/10	Introduction to hypothesis testing	Chapter 8
	03/12	Introduction to the t-statistic	Chapter 9
		Spring Break	
10	03/22	Introduction to the t-statistic	Chapter 9
	03/24	t-test for two samples	Chapters 10 and 11
	03/26	No class this day	Speaking engagement
11	03/29	t-test for two samples	Chapters 10 and 11
	03/31	t-test for two samples	Chapters 10 and 11
	04/02	Introduction to ANOVA	Chapter 13
12	04/05	Exam III	Covers chapters 8 – 11
	04/07	Introduction to ANOVA	Chapter 13
	04/09	Introduction to ANOVA	Chapter 13
13	04/12	Correlation	Chapter 16
	04/14	Correlation	Chapter 16
	04/16	Regression	Chapter 17
14	04/19	Regression	Chapter 17
	04/21	Statistics for nominal data	Chapters 18 and 19
	04/23	Spring weekend recess	
15	04/26	Statistics for nominal data	Chapters 18 and 19
	04/28	Statistics for ordinal data	Chapter 20
	04/30	Statistics for ordinal data	Chapter 20
Final Examination is Wednesday, May 5, from 9:00 to 11:00. Covers chapters 13 and 16 – 20			



Tentative Semester Schedule, Lab:

Week	Date*	Topic	Quiz Covers	Homework Assignment
1	01/12 and 01/14	Intro to SPSS	Chapter 1	Chapter 1
2	01/19 and 01/21	Scales of measurement	Chapter 2	Chapter 2
3	01/26 and 01/28		Chapter 3	Chapter 3
4	02/02 and 02/04	Descriptive stats in SPSS	Chapter 4	Chapter 4
5	02/09 and 02/11	Basic computation in Excel	Chapter 5	Chapter 5
6	02/16 and 02/18		Chapter 6	Chapter 6
7	02/23 and 02/25		Chapter 7	Chapter 7
8	03/02 and 03/04		Chapter 8	Chapter 8
9	03/09 and 03/11		Chapter 9	Chapter 9
10	03/23 and 03/25	Single sample t in SPSS	Chapters 10 and 11	Chapters 10 and 11
11	03/30 and 04/01	t-tests in SPSS		
12	04/06 and 04/08	ANOVA in SPSS	Chapter 13	Chapter 13
13	04/13 and 04/15	Correlation in SPSS	Chapter 16	Chapter 16
14	04/20 and 04/22	Regression in SPSS	Chapter 17	Chapter 17
15	04/26 and 04/30		Chapters 18 – 20	Chapters 18 – 20

* - The first date listed each week applies to the Tuesday lab, the second to the Thursday lab.



Examinations:

Each examination will consist of two parts: a take-home portion and an in-class portion. The take-home portion will consist of applications and computations. These will be distributed the class period before a scheduled examination and will be due the day of the exam. You are permitted to refer to your book and your notes while completing the take home portion of the exam. You *may not* consult other students, faculty, or Internet resources. If you have any questions about the take-home portion of the exam, *direct them to me*. The in-class portions will be primarily conceptual in nature, though some simple calculations may be required. The in-class exams will consist primarily of multiple choice questions, but may include short essay questions.



Quizzes:

Nearly every week there will be a quiz in the lab. The quiz will cover the *readings* for that week. This means that you may be quizzed on material that I have not lectured on. Your scores from the lowest three quizzes will be dropped; the scores from the remaining 10 will count for 15% of your final grade. No make-ups of the quizzes will be permitted; if you miss a quiz it will be one of the three dropped grades. Quizzes will be administered at the beginning of the lab period only, so if you are late you will have missed the quiz and it will be one of your three dropped scores.



Homework Assignments:

The only way to really learn and understand statistics is to do statistics, so there will be homework assignments each week. Each homework assignment will be questions from the relevant chapter(s) of the Runyon et al. text; you will complete the odd numbered problems for each assigned chapter. The answers for these problems are in the back of the book and you should make sure that your answer agrees with the answer given. If not, you need to go back and figure out where you went wrong. When you turn in your homework you must show your work. We will use the lab periods to go over questions about the homework assignments.

Computer Lab Exercises:

The labs meet in one of the White Hall computer labs so in many lab periods I will show you how to perform that week's techniques using SPSS or Excel. You will be required to complete the assigned analysis and turn in the completed answer sheet for grading.

Course grade:

There are a total of 100 points that can be earned in this course. There will be 4 exams, each worth 15 points. There are 17 chapters of homework; together they will count for 15 points. The quizzes will count for 15 points. The SPSS labs together will count for 10 points. Your final grade for the course will be based on the total number of points you earn. Specifically, the values are 90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, below 60 = F.

Attendance Policy:

This lecture portion of this class meets in White Hall room 106 on Monday, Wednesday, and Friday from 9:10 – 10:00. The lab meets in White Hall room 204 on Tuesdays from 8:10 – 9:25 or Thursdays from 8:10 – 9:25, depending on your section (please note that you must attend the lab section that you signed up for). Because material from my lectures and any in-class examples will be included on the exams, regular attendance is extremely important. While there are no specific penalties for not attending class, **you** are responsible for information missed during an absence from class and you are responsible for arranging to make up missed material (see page 51 of the University Catalog and the Late Work Policy below).

Mobile Phone Policy:

Cognitive psychology has taught us that learning requires the allocation of attention to the to-be-remembered material and that dividing attention among two or more attention-demanding tasks decreases performance on all of the tasks. Using a mobile phone to engage in any kind of communication is an attention-demanding task and disrupts the classroom learning environment. The Student Handbook prohibits activities that are disruptive in the classroom, therefore use of mobile phones in this class is prohibited. You must turn off your phone when entering the classroom. If you engage in mobile phone use while in class you will lose points equal to 20% of your final course grade per occurrence. If you are concerned about receiving RAVE alerts, I am subscribed to the system and will bring my phone to class. If my phone rings during class time for anything other than a RAVE alert I will award everyone in class that day extra credit points worth 5% of the final course grade.

Late Work Policy:

Please note: I expect, perhaps as a result of my management background, your best performance on exams and things turned in when they're due. I'll help you prepare for your assignments as much as possible before they're due, but when the time comes, I expect you to be prepared. All assignments have a due date and I **will not** accept late work without prior arrangements. If you know in advance about any situation that would interfere with your ability to meet a deadline (e.g., excused sporting or other campus events, scheduled business travel), see me as soon as possible **before** the deadline. If your conflict is with an exam date, you may take the test early, again only with prior approval. If something unforeseeable comes up on the day an assignment is due (e.g., a medical emergency, death in the family), please contact

me as soon as possible after the incident to discuss possible rescheduling options. Be aware that I will require you to document the cause of any unforeseen rescheduling of exams or other assignments.



Academic Integrity Policy:

From the 2009-2011 University Catalog, page 56:

Cheating in all its forms, including plagiarism and cheating on visual work, is considered an academic matter to be controlled and acted upon by the individual faculty member.

Students guilty of academic dishonesty on examinations in any course shall receive, as minimum penalty, a grade of F in that course. Such action shall be taken by the instructor, with written notification to the appropriate College administrators. Repeated offenses shall subject the student to suspension or dismissal from the college. Students involved in facilitating the academic dishonesty among others, such as the unauthorized dissemination of examination materials, will be subject to disciplinary action beyond that called for by their own cheating in the course.

In this class, you must work as an individual on homework assignments and examinations. You may (and actually are encouraged to) form study groups and share notes, books, etc. when preparing for an exam, but you must work alone and without any of these resources when taking an exam. This policy applies to both the in-class and take-home portions of the examinations.



Communication:

My intent is to be as accessible to you as possible. Please feel free to stop by my office any time. I'm available by phone whenever I'm in my office and you can leave voice mail if I'm not. If you need quicker response times (especially on weekends), use email. If you do send me course-related email you should include a subject in the subject line (SPAM filters often delete messages with no subject) and the subject should start with [PSYC 250]. I usually check my email many times everyday, even on weekends. Finally, check the course Sakai page (available at <http://courses.shepherd.edu/xsl-portal>) – it is meant to be a resource to help you with the course. Useful information and some course materials (e.g., PDF versions of my PowerPoint presentations) will be made available there.

NOTICE Email policy

Please be aware that I will not discuss official business (e.g., coursework, course grades, academic advising, etc.) via email unless you use your Shepherd email address. This is mostly for the protection of your privacy. If, for instance, I get an email signed Mary Smith requesting sensitive information about her progress in my class, but it comes from hotgurl46@aol.com, I have no way of knowing whether it is really from Mary Smith or someone else.

How to do Well in Statistics

1. Keep in mind that statistics is cumulative. Each new topic builds on the material that came before. Thus, the notation learned in chapter 1 is used to compute means in chapter 3. Understanding of

the mean is required to understand standard deviations in chapter 4. Both means and standard deviations are needed to understand z-scores, and so on. You must keep up with the work in this class: come to class, read the textbook, and do the homework.

2. Read the textbook. My lectures cover the highlights and, I hope, clarify the difficult parts. The textbook, on the other hand, can cover things in far more detail than I can do in only 3 hours per week. You should read each chapter before I lecture on it; the lecture will make much more sense that way and you'll be prepared to ask questions on bits that you don't understand.

Read each chapter with a pencil, paper, and a calculator at hand. Before you begin, page through the chapter and note the major headings and topics to be covered. Ask yourself a meaningful question about each one (it might be helpful to write these questions on your paper). Then read the chapter, looking for the answers to your questions. Make sure that you understand each concept before moving on to the next one. Work all of the numerical answers in the text for yourself; think of it as guided practice.

3. Practice helps. This is a fundamental psychological principle. So, go home after lecture and do for yourself the examples that I used in class. Rework the examples from the book. And, most important, do the homework. It's too easy to watch me work a problem and to say to yourself, "Yes, I can do that." I'm sure that you can. What's important is whether you can do it when I'm not there. Doing the homework will let you know.
4. Get a "feel" for statistics. You really don't want to just be an automaton plugging numbers into formulas with no idea why you're doing so or what a reasonable answer should look like. If a friend tells you that the correlation between anxiety and adjustment to college is 1.5, you should be able to instantly tell him that he's wrong and you should understand why a correlation can never be 1.5.
5. Work carefully. As you work problems, check and recheck your work. This is a time to be detail oriented. The vast majority of the computations you'll be doing in this class will be simple addition, subtraction, multiplication, and division. Those are very easy to get correct with a calculator and a little care. Numbers are not ambiguous concepts; $2 + 3$ is always 5, never 6 or 5.1. Thus, there will be no partial credit for wrong answers.