Quantitative Methods in Psychology

Summer 2013 – 01:830:200:B1
M, T, Wed, and Thu 10:55AM – 1:35PM
HILL 116, Busch Campus

Instructor: Elio Santos

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Office Hours: Mondays 1:35 – 2:35 (HILL 116)

This course has been certified as satisfying Quantitative and Formal Reasoning Learning Outcome Goals (QQ and QR) of the SAS Core Curriculum.

General goal:

The purpose of this course is to provide you with an introduction to statistics in the behavioral sciences.

Specific goals:

1) Develop conceptual and mathematical understanding of general probability, measurement, variability, point estimation, confidence intervals, inference, correlation, hypothesis testing, etc.

2) Be able to choose the appropriate statistical procedures given a particular type of data and research situation.

3) Compute descriptive and inferential statistics.

4) Be able to read, understand, and critically evaluate the statistical and graphical methods used in peer-reviewed journal articles and popular media.

5) Appreciate how useful statistics is and the role it plays in everyday life.

Course Materials:

Textbook: Privitera, G. J. (2012). Statistics for the Behavioral Sciences. Sage Publications. ISBN: 9781412969314

Calculator: You will need a simple calculator capable (at a minimum) of computing square roots. An inexpensive solar-powered scientific calculator would be preferable, since these allow the use of parentheses, have a straightforward squaring function, and are unlikely to run out of power in the middle of an exam. Texas Instruments TI-30X IIS might be a good option. Note: even if you have calculator functions on your smart phone

or computer, you will need this calculator for exams. **You will not be permitted to use phones or laptops during the exams.**

Resources

All course materials can be found on http://sakai.rutgers.edu after you log in. Announcements, changes, assignments, resources, etc. will be posted in the Sakai site for this class. The name of the class should be 01:830:200:B1 Su13.

If want to use SPSS, Excel or any other computer software to check your answers for the homework assignments, you can go to one of the computer labs on campus (http://www.nbcs.rutgers.edu/ccf/main/locations/).

Textbook website: http://www.sagepub.com/priviterastats/study/intro.htm
There are chapter summaries, study guides, SPSS in Focus screencasts, and other useful resources.

Grading

The break down for the final grade will be the following:

Homework	**10%**
Quizzes	**15%**
Exam 1	**20%**
Exam 2	**20%**
Final Exam	**35%**
Total	**100%**

Homework: Homework will be assigned throughout the semester and will contribute to 10% of the course grade. Problem sets will typically be assigned in class (and posted on the Sakai site) and will be due at an announced time. No late homework assignments will be accepted. To receive any credit on computational questions, you must show your work. Since there are no recitations for this class, a few problem sets might be given out in class for students to work in small groups. These problem sets will count as homework.

Quizzes: Quizzes will be given in class and will not be announced before hand to promote attendance and punctuality. Quizzes will also help you to identify which concepts you need to study and which computations you need to practice. They will contribute to 15% of the course grade.

Exams: There will be three exams for this class. Each of these exams will consist of two parts. The first part will be conceptual (i.e., no calculations, only multiple choice and short written answers to objective questions) and the second part will be computational. For the computational portion of the first two exams, you will be permitted to bring one standard letter-sized (8.5 x 11in) sheet of paper with any formulas on one side. The other side of the sheet should be blank. You will be allowed to use both sides of a sheet of paper for the final exam since you will need more space for the greater number of

formulas. In order to receive any credit on the computational part of the exams, you must show your work. Only calculators are permitted, no other electronic devices may be used during exams.

Comprehensive Final Exam: The final exam will be structured similarly to Exams 1 and 2, but it will be longer. You will be allowed to bring a single letter-sized sheet of paper with any formulas on it. You may use both sides of the sheet of paper for the final exam.

Make Up Exams: In order to qualify for a make-up, you must notify me as soon as possible by email and provide appropriate documentation (e.g., a physician's note, an obituary or funeral notice, a police report, etc.). If you need to miss a class for a planned absence in the future (e.g., a religious holiday), please talk to me at the beginning of the semester or a month before so that we can schedule a make-up. If you do not meet all of these criteria, you will not be permitted to take a make-up. Make up exams may differ significantly in structure from the in class exams.

Cancellations

If an exam or class is cancelled, an announcement will be posted on Sakai and you will receive an email from me as well. Notices posted on doors or on the blackboard about class/exam being cancelled are likely to be hoaxes.

Note taking, participation, and electronic devices

I expect all students to ask questions, participate in class, and take notes. You should have a notebook for the class and use a pen/pencil to take notes since **you are not allowed to use any electronic device while I am lecturing**. That includes cell phones, laptops, and tablets. Points will be deducted from your final exam if I (or a member of the psychology department) see you using an electronic device while I am lecturing.

Academic Integrity

Getting any form of assistance from other students or outside sources on exams, quizzes or individual homework assignments is prohibited. Students suspected of doing so will be brought up on charges before university's Office of Student Conduct, and penalties, up to and including expulsion, will be imposed for those found guilty. (See http://policies.rutgers.edu/PDF/Section10/10.2.13-current.pdf for specifics or http://academicintegrity.rutgers.edu/)

Academic Accommodations

Should you require academic accommodations, you must file a request with the Office of Disability Services for Students (http://disabilityservices.rutgers.edu/request.html). You should register with disability services as soon as possible. It is your responsibility to self-identify with the Office of Disability Services and to provide me with the appropriate documentation from that office at least one week prior to any request for specific course accommodations. There are no retroactive accommodations.

Ten helpful hints

1. The most important requirement for doing well in this class is to attend class. Lecture attendance is crucial.

2. The course content is cumulative so if you miss class, your understanding of material in subsequent classes will be compromised.

3. Ask questions in lecture if you're confused. New material relies on the concepts already developed.

4. Ask questions for information, to test your own knowledge and to develop critical skills.

5. Make sure you understand the main points of each lecture and the main points of the reading material. You should be able to understand how specific examples and specific details relate to the main themes. Test yourself by writing a short summary or an outline of the lecture. Don't rely on the feeling that you know what's going on. See if you can state the main points and solve simple problems.

6. Each lecture builds on the material of the prior lectures. Review your notes, with special emphasis on the main themes, before coming to class.

7. When reading the text pay particular attention to the key words, examples and to the graphs and figures. This is where the authors are putting the most important information.

8. Pace your reading wisely. Do not leave it all for the last minute.

9. For individual help, see me after class, or during office hours.

10. If you would like to discuss exam performance, bring your exam to office hours. Often there is a pattern to the errors that can be diagnosed only by examining your performance.

Course Schedule

Assigned readings should be read in advance of the associated lectures. **Changes and amendments may be made to this schedule as the course progresses.**

Date	Topic	Assigned readings
Tue – 05/28/2013	Course overview, syllabus; Basic mathematical and statistical concepts; notations	Appendix A & Chapter 1
Wed – 05/29/2013	Measures of Central Tendency, Frequency Distributions, Plotting Data & Reading Graphs	Chapters 2 & 3
Thu – 05/30/2013	Measures of Dispersion or Variability	Chapter 4
Mon – 06/03/2013	Basic Concepts of Probability	Chapter 5

Tue – 06/04/2013	Probability, Normal Distributions, & z-Scores	Chapter 6
Wed – 06/05/2013	Sampling Distributions; Review for Exam 1	Chapter 7
Thu – 06/06/2013	**Exam 1**	
Mon – 06/10/2013	Intro to Hypothesis Testing	Chapter 8
Tue – 06/11/2013	z-Tests and Intro to t-Tests (One Sample)	Chapter 9 (9.1-9.6)
Wed – 06/12/2013	t-Tests II (Two Related Samples)	Chapter 10
Thu – 06/13/2013	t-Tests III (Two Independent Samples)	Chapter 9 (9.7-9.10)
Mon – 06/17/2013	Estimation & Confidence Intervals	Chapter 11
Tue – 06/18/2013	Introduction to ANOVA	Chapter 12 (12.1-12.5)
Wed – 06/19/2013	ANOVA I Continued (One-Way, Independent Samples) & Post-hoc Tests Chapters	12 & 13 (12.5-12.7,13.5)
Thu – 06/20/2013	ANOVA II (One-Way, Repeated Measures); Review for Exam 2	Chapter 13
Mon – 06/24/2013	**Exam 2**	
Tue – 06/25/2013	ANOVA III (Factorial Design)	Chapter 14
Wed – 06/26/2013	Correlation	Chapter 15
Thu – 06/27/2013	Linear Regression	Chapter 16
Mon – 07/01/2013	Nominal Data & The Chi-Square Test; Nonparametric & Distribution-Free Tests;	Chapter 17 & 18
Tue – 07/02/2013	Review for Final Exam	
Wed – 07/03/2013	**Final Exam**	

If you decide to stay enrolled in this class after receiving this syllabus, I will assume you have read the entire syllabus and have agreed to all the policies outlined.