

**PSY 4317 Syllabus**  
**Spring 2017**  
**Anthony Blum, Ph.D.**

Class: ULC Rm. 208  
MW 12:00-1:30  
Office Hours 11:30-12:00 (MW)  
or, by appt.

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**Text:** “Using SPSS for Windows and Macintosh” (7<sup>th</sup> edition) by Green & Salkind+  
“Exploratory Data Analysis by Hartwig & Dearing.

**Course Overview:** After beginning with some of the elementary aspects of research design, the course will introduce students to inferential statistical tests beyond the basic level of PSYC 1303. The specific inferential statistical tests newly introduced will include the Factorial Analysis of Variance, Repeated Measures ANOVA, Analysis of Covariance, Factor, and Multiple Regression. We will then examine various non-parametric tests that are alternatives to some of the above tests. The student will learn how to perform these various tests utilizing the SPSS statistical program. Although we will be working with data sets, I view the course mainly as a conceptual course. That is, do you understand the differences between the various statistical tests and when (and why) to apply them? Do you know how to interpret your results? What are the assumptions behind the tests? What do you do when those assumptions are violated? Which design goes with which test? Are there logical flaws in how these tests are typically used? We will examine various criticisms of the null hypothesis statistical tests and examine alternative ways to analyze one’s data from the perspective of exploratory data analysis (EDA). Finally, the course will conclude with a brief description of Bayes Theorem and associated ideas.

**Course Objectives:** The student will learn about different types of advanced statistical tests and associated research designs. The overall goal of the course is to provide students with the ability to recognize the appropriate statistical procedures for particular research designs, and the ability to perform (and interpret) those statistical procedures for a wide range of designs. The course will include a strong emphasis on conducting these analyses in SPSS and interpreting SPSS printouts. An important part of the course will be to understand there is a world of statistical procedures beyond the statistical tests and how to look at statistical tests in a critical fashion.

**Course Requirements:** There will be three exams. The exams will focus on conceptual issues related to the statistics, statistical tests, and associated designs--- there will be no computations required on the tests. There will be five homework assignments. The homework assignments will focus on computations and the use of SPSS. We will have a final paper instead of a comprehensive final exam that will be due final exam week (more on the paper later).

**Graduate Requirements:** In addition to the above, graduate students who are taking the course will be required to extend (and apply) their knowledge of the Bayesian approach to statistics. There will be assignments that focus on the conceptual differences between Bayesian Analysis and the classical approach to statistical tests, as well as a few computational problems. This assignment will be worth 100 points.

**Grading Scale:** 90-100 A; 80-89 B; 70-79 C; etc.

**Points:** Each of the three exams will be worth 100 points each. Each of the five homework assignments will be worth 50 points each. The final paper is worth 100 points. (For graduate students your total will include all of the above plus the EDA assignment mentioned above worth 100 points). There will also be a short online quiz testing your knowledge of introductory statistics worth 15 points.

**Attendance:** I will not be grading your attendance, although typically students who attend class regularly do better than those who do not. Learning how to use SPSS is particularly difficult for students who do not attend class.

**Classroom Etiquette:** Use common sense--- that is, please be aware that there are other people in the classroom.

**Contact:** As you will notice above, I have provided you with my office hours, my phone number, and my email address. Of the three, email is probably the most reliable way to get a hold of me—although usually I am just sitting in my office during my office hours staring at the walls. I will not mind the interruption. I will use classroom announcements and email as my preferred ways for contacting you. Please check your utep.edu email accounts regularly.

**Teaching Associate:** We will have a TA for the course. The TA will be responsible for grading the home works, and will be available for advice with regularly scheduled office hours. Contact information will be provided when available.

**Cheating:** The instructor will report violations (cheating, plagiarism) to the Office of Student Conduct and Conflict resolution. That office will decide the appropriate penalty. Just to avoid the appearance of cheating, during an exam the student will not have anything on his or her desk--- especially cell phones.

**Make-up Exams:** At the end of the semester--- during the time of our regularly scheduled final exam—you will take a make-up version of any exam that you have missed during the semester. If you have taken all three exams (**and only if you have taken all three exams in class**) and you are unhappy with one (and only one) of the exam scores, then you can re-take (a version of) that exam on make-up day (which occurs during our scheduled exam on finals' week). The make-up policy means that you cannot schedule your own exams--- if you miss an exam it is taken on the make-up day.

**About the Text:** The required texts will be supplemented by a number of outside readings posted on Blackboard—readings on simple linear regression, multiple regression, oneway ANOVA, dummy coding, factorial ANOVA, repeated measures ANOVA, ANCOVA, non-parametric statistics, effect size, basics of probability, and Bayes' Theorem.

**Accommodations:** If a Student has or suspects he/she has a disability and needs an accommodation, he/she should contact the Center for Accommodations and Support Services (CASS) at 747-5148 or at [cass@utep.edu](mailto:cass@utep.edu) or go to Room 106 Union East Building. The Student is responsible for presenting to the instructor any CASS accommodation letters and instructions. If you need to take an exam with CASS you will need to schedule the exam with them no later than three (work) days prior to that exam.

**Suggested Readings (On some topics that might be next)**

“Bayes' Rule: A Tutorial Introduction to Bayesian Analysis.” James V Stone.  
*If not statistical tests, then what?*

“The Elements of Graphing Data” William Cleveland.  
*More types of graphs and how to construct them.*

“The Significance Test Controversy: A Reader.” Morrison & Henkel (ed.s).  
*A collection of critiques on the use of statistical tests.*

“Understanding Psychology as a Science” Zoltan Dienes.  
*A comparison of different approaches to statistics.*

**SPSS Access:** You will need to have access to SPSS for this class. Many computers on campus have SPSS installed on them. However, if you will need to have access to SPSS while off campus, I will be posting on Blackboard a set of instructions for how to access SPSS remotely. You should see if these instructions work for you (sometime before the night that the first HW is due). If not, then contact me, or better, the helpdesk and see if you can resolve the problem. It is best to avoid attempting to solve such problems the night before, or the day of, the due date of an assignment.

**Schedule (all references (“Lessons”) to Green and Salkind unless otherwise indicated). HW dates are when the HWs are assigned.**

1/18 Intro/Terminology Review (Reading)  
1/23 Correlation and Simple Linear Regression (Lessons 31 and 33)  
1/25 Correlation and Simple Linear Regression  
1/30 Multiple Regression (Lesson 34)  
2/1 Multiple Regression/partial correlation (Lesson 32) (HW#1)  
HW#1 on simple linear regression, multiple regression, partial correlation  
2/6 Oneway ANOVA (Lesson 25)  
2/8 Oneway ANOVA/Dummy Coding  
2/13 Factorial ANOVA (Lesson 26)  
2/15 Factorial ANOVA (HW#2)  
HW#2 on Oneway ANOVA, dummy coding Factorial ANOVA  
2/20 EXAM 1 (on topics above)  
2/22 ANCOVA (Lesson 27)  
2/27 ANCOVA  
2/28 Repeated Measures ANOVA (Lessons 29 and 30)  
3/1 Repeated Measures ANOVA (HW #3)  
HW#3 on ANCOVA, repeated measures ANOVA  
3/6 Mixed Designs  
3/8 Mixed Designs  
3/13 Spring Break  
3/15 Spring Break  
3/20 Mixed Designs  
3/22 Non-Parametric Tests (Lessons 42,43, 44, 45)  
3/27 Non-Parametric tests (HW#4)  
HW#4 on Mixed Designs, non-parametric tests  
3/29 EXAM 2  
4/3 Exploratory Data Analysis (from Hartwig & Dearing)  
4/5 Exploratory Data Analysis  
4/10 Exploratory Data Analysis  
4/12 Exploratory Data Analysis (HW#5)  
HW#5 on EDA techniques: graphing and re-expression  
4/17 Critiques of Statistical Tests (readings)  
4/19 Critiques of Statistical Tests  
4/24 Statistical Power  
4/26 Bayes Theorem/Probability  
5/1 More Bayes/Monty Hall Dilemma  
5/3 EXAM 3

Finals Week 5/8-12