

SYLLABUS - PSYCHOLOGY 611 (STATISTICS)

SECTION 001

PROFESSOR - JOSE' CORTINA

RM. 3074 DAVID KING HALL

PH# 993-1347

OFFICE HOURS – 10:30-12 TR or by appt.

TEACHING ASSISTANT – Alex Lindsey (alindse3@gmu.edu)

TEXTBOOK – Nope

OTHER READINGS –

Reliability and validity assessment – Carmines & Zeller

Understanding regression analysis: An introductory guide – Schroeder, Sjoquist, & Stephan

Factor analysis: Statistical methods and practical issues – Kim & Mueller

OVERHEADS, LAB QUESTIONS AND PRACTICE PROBLEMS ARE CONTAINED IN THE EMAIL THAT CONTAINED THIS SYLLABUS

Class Structure

1. Class meets Tuesday and Thursday from 9:00-10:15.

2. There is a midterm exam and a *cumulative* final.

a. The midterm will be on Thursday, October 13. The last half of class on October 6 will be a review session. The final exam will be on **THURSDAY, Dec 13, AT 7:30.**

b. The exams will be part multiple choice and part calculations/explanations. The midterm shouldn't take more than an hour, while the final will be longer. If you have questions about an exam, try to ask them before the test day; either during the previous class or during office hours. Questions will be taken from both the readings and lecture (and therefore the lab as well), but mostly from lecture. Don't ignore one or the other. There will be review sessions held before each exam.

c. IF you do a lit review (see below in section e), your course grade will be based on your final exam grade (25%), your midterm grade (25%), your popquiz grade (15%), and your lab grade (25%), and your lit review grade (10%). If you don't do a lit review, then the midterm, final, popquizzes, and lab are worth 30%, 30%, 15%, and 25% respectively.

d. LAB (sections 201-203)- The purposes of the lab are to give you supervised practice in working out the problems that we cover in lecture and to familiarize you with SPSS. A list of lab questions to be used during the semester WERE EMAILED TO YOU. The questions are in approximate chronological order. In other words, we will cover their topics in that order. All lab sections will be responsible for questions relating to the topics that we covered THE THURSDAY OF THE PREVIOUS WEEK AND THE TUESDAY OF THE CURRENT WEEK.

Your lab grade will comprise a large chunk of your grade in the class, so take it very seriously. Upon arriving to lab each week, you will turn in your work on the relevant questions. If your work shows that you have clearly made an honest attempt to work all of the problems, then you will receive 4 points for that week. You needn't get them right to get full credit, you simply need to have made an honest attempt in the eyes of the TA. If your work shows that you have made an effort with some of the problems, or if you turn in your work late, then you will receive 2 points for the week. If you turn in nothing, you receive no points for the week. **YOU WILL RECEIVE NO POINTS FOR ANY WEEK IN WHICH YOU DO NOT ATTEND THE LAB SESSION, EVEN IF YOU DID THE LAB QUESTIONS ON TIME, UNLESS YOU HAVE COMMUNICATED A NEED TO MISS LAB AHEAD OF TIME.** As you turn in your work, your lab instructor will mark down the number of points that you receive and give your work back to you. Once everyone has had their points recorded, the instructor will go over the problems with you. As I mentioned earlier, the lab grade is 25% of your overall grade. **The lab grade is calculated as follows: Missing 0-2 points throughout the course of the semester= A, Missing 4-6 points= B, 8 pts= C, 10-12 pts= D, > 12 pts= F.** This scale may seem harsh, but in fact it simply means that, if you make an effort to answer all of the lab questions and show up to lab, you get an A for the lab portion of your grade. If you don't take lab seriously enough, your class grade will be greatly affected. **DON'T MISS ANY ASSIGNMENTS OR LABS!**

e. Lit review. The department requires all doctoral students to do a research proposal as part of 611/612. The proposal is optional for Master's students but is recommended for any that have designs on the doctoral program. The part of the proposal that is due for 611 is the lit review. Everyone doing a proposal must coordinate with their faculty advisor in order to choose a topic, work toward goals, etc. Your advisor assigns the grade for the lit review, and this grade is due to me by December 13. I have nothing to do with the proposal process.

f. POPQUIZZES. I tried to do without pop quizzes a couple of years ago, but it didn't work. The popquizzes motivate everyone to stay on top of the material, and they give you a chance to see the sorts of questions that I ask. There will be three pop quizzes before the midterm and three after the midterm. You never know when they will occur, so attendance is, shall we say, recommended. The quizzes will begin at 9:00 sharp and end promptly at 9:20. If you arrive to class on time, you will have the full twenty minutes. If you are late, you will have less time to complete the quizzes. You are allowed to drop one of your six quiz grades. If you have to miss a class on which a quiz occurs for some reason, that will be the quiz grade that you drop. **HOWEVER**, it is imperative that you show me documentation of the reason for your missing a quiz. If you have a legitimate excuse for missing a quiz, then you will be safe if you have to miss a second quiz. In other words, the first quiz that you miss will be the one that you drop. If you have to miss a second quiz for a legitimate reason (hangovers and alarm clock difficulties don't count) **AND** you were able to show me that you had a legitimate reason for missing the first quiz, then I will allow you to take the second missed quiz over. **I WILL NOT GIVE MAKEUPS ON THE FIRST QUIZ THAT YOU MISS FOR ANY REASON (INCLUDING SICKNESS, HANGOVERS, DEATH, DISEASE, FIRE, BRIMSTONE, FAMINE, PESTILENCE, PLAGUE, LOCUSTS, CLIMATE CHANGE, ASIAN BIRD FLU, MAD COW DISEASE, TAYLOR SWIFT EXPOSURE, ARMAGEDDON, SPONTANEOUS UNIVERSAL EXISTENCE FAILURE, ETC.)!**

G. TEXTBOOK. Because I have never found a textbook that matches my emphasis and style, and because everyone always whines about the textbook anyway, I am going to try teaching this class without one. If you feel that you might benefit from having one anyway, any of the following would do:

Heiman, G.W. (2006). Basic Statistics for the Behavioral Sciences (5th ed.). Boston, MA: Houghton-Mifflin.

Howell, D.C. (2004). Fundamental Statistics for the Behavioral Sciences (5th ed.). Pacific Grove, CA: Brooks/Cole.

Thorne, B.M. & Giesen, J.M. (2000). Statistics for the Behavioral Sciences (3rd ed.). Mountain View, CA: Mayfield.

g. CHEATING If you are caught with a cheat sheet, you will fail that quiz/exam and will not be allowed to drop that failing grade. If, at any other time during the semester you are caught doing anything untoward during a test, you will be given an F in the class, and it will be recommended that you be expelled.

If you are caught copying off of someone else's exam, you will be warned. If you are caught doing it again at any time during the semester, you will be given an F in the class, and it will be recommended that you be expelled.

3. As I said before, we have to cover a lot of material in a relatively short period of time, so I have a few suggestions. Do with them what you will.

a. Come to class every single time and show up on time. I will take quiz/exam questions from every class. If you miss a class, then you miss those questions on the quiz/exam. And, of course, if you miss a class, you might miss a quiz.

b. Take your notes and your book home every class day and spend an hour or so making an outline of the material that we covered that day. This will force you to organize your notes and go over everything while it is still fresh in your memory. When you have questions, write them down and ask them at the beginning of class.

4. Bring a calculator to every class. It doesn't have to be a fancy one. All you need is something that will do square roots.

5. You were also emailed the overheads that I will use during class as well as some extra practice problems. The overheads allow you to pay attention instead of having to copy down the info on the overheads. The practice problems are NOT to be turned in. The answers to the practice problems and how to get them are also in the packet. They are for your benefit. If you are wise, you will work through them for practice.

General tips

Many people are scared of math in general and statistics in particular. Don't be. Some of this stuff is hard to grasp. That is OK. Don't panic. Learn what you can and ask questions. Don't expect to understand all of this stuff completely the first time around. Just pick it up as best you can. Statistics involves many strange terms and many strange greek symbols. Don't be intimidated. It will all become clear.

Timeline

Below is a week by week schedule of topics. This schedule is tentative. Some weeks will go more quickly than I anticipate, some will go more slowly. Also listed are the readings for each set of topics.

Week 1 – August 28, August 30 : Meta-Teaching, Don't be scared, terminology, notation, scales of measurement, distributions, central tendency

Week 2 – Sept 4,6: Variability, normal distribution, z-scores and standardization, standard error of the mean

Week 3 – Sept 11,13 : Covariance and correlation, scatterplots, prediction, effect size 1

Week 4 – Sept 18,20: Simple regression, the line of best fit, least squares criterion, error of prediction, standard error of estimate, assumptions

Readings: Schroeder et al., pp. 11-28

Week 5 – Sept 25,27: Scale construction, Reliability, and validity

Readings: Carmines & Zeller: The whole enchilada

Optional but recommended: Cortina (1993), Journal of Applied Psychology

Week 6 – Oct 2,4: Multiple regression, Multiple R, partial and semi-partial r, relative importance, collinearity, entry of predictors, Shrinkage

Readings: Schroeder et al., 29-35

Week 7 – Oct. 11: Midterm

Week 8 – Oct 16,18: Differences between means, statistical significance, Z-tests, t-tests for diffs between means, power

Week 9 – Oct 23,25: Oneway ANOVA, F-tests, planned comparisons

Week 10 – Oct 30,Nov 1: Interactions, twoway ANOVA, effect size, plotting interaction

Week 11 – Nov 6,8: Moderated regression, polynomial regression, significance tests for regression

Readings: Schroeder et al., 36-51

Week 12 – Nov 13,15: Repeated measures

Week 13 – Nov 20: Nonparametrics

Week 14 – Nov 27, Nov 29: Factor Analysis

Readings: Kim & Mueller, the whole enchilada

Week 15 – Dec 4,6: Factor analysis cont'd and wrap up

I am not going to make any prognostications about when or if we will get to these various topics. I don't want to move on until I feel like most people understand what is going on. The only dates on which I know what will happen are the following:

- TUESDAY, AUG. 28 – FIRST DAY OF CLASS
- THURS, OCT 4, REVIEW FOR THE MIDTERM
- OCT 9, NO CLASS

- THURS, OCT. 11, MIDTERM
- NOV 21-25, THANKSGIVING
- THURS, DEC 6, REVIEW FOR THE FINAL AND LAST DAY OF CLASS
- THURS, DEC. 13, FINAL EXAM, 7:30 – 10:15 A.M.