8100 Statistics and Experimental Design
Course Syllabus
Spring 2017

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Office hours:	Mon and Wed 12:30 – 1:30 pm and by appointment

Required Course Materials:
Howell, D. C. Statistical Methods for Psychology. Belmont, CA: Wadsworth/Thomson Learning.

Additional Supplies
Calculator (CAN NOT BE PROGRAMABLE)
Three ring notebook
**Bring your book, cookbook, and calculator to every class session!!

Course Description
Psychology 8100 is an intense course designed to provide you with an advanced understanding of the statistical methods used in behavioral and social sciences. Lectures will focus on techniques for describing behavior data and making inferences about them. After taking this course you should be able to understand and apply many of the essential statistical concepts used by psychologists in basic and applied research.

Student Responsibilities
My goal is to provide you with the best educational experience possible. However, it is up to you to take advantage of the instructional activities that are planned. Some of your responsibilities include:

-Attend all classes
-Arrive on time
- Read all assignments on the schedule prior to class
-Allow sufficient time to prepare for class (12 to 18 hours per week outside of class)

Academic Integrity
All Villanova students, including those in this course, are expected to maintain the highest standards of academic integrity and to not tolerate any form of academic dishonesty or misconduct. All students should be familiar with and will be bound by the Academic Integrity and Plagiarism policy found in the Villanova University Handbook or the following website: http://www.vpaa.villanova.edu/academicintegrity/.

Disabilities
It is the policy of Villanova to make reasonable academic accommodations for qualified individuals with disabilities. If you are a person with a disability, please contact me after class or during office hours to make arrangements to register with the Learning Support Office by contacting 610-519-5636 or at nancy.mott@villanova.edu as soon as possible. Registration with the learning Support Office is required in order to receive accommodations.

Grading

	Points
Test #1	100
Test #2	100
Test #3	100
Cookbook / SPSS Problems	20

An incomplete ("N") will only be granted in emergency situations, such as severe illness. However, you must get my approval ahead of time to receive an incomplete. Do not assume an incomplete will be granted automatically if you miss an exam. Leaving a message on my voice mail does not constitute permission.

Tests

Each test is split into two sections – one section is closed note and the other section is open note (closed book). This is why it is essential for you to create a statistical "cookbook". There will be no make-up exams without a written excuse. All make-up exams must be completed during the departmental make-up time.

Cookbook/ SPSS Problems

The term "cookbook" refers to step by stop examples of how to compute each statistic. You are **required** to have a summary Cookbook page for every major topic covered and a separate page for each major statistical formula covered. You will also be required to have completed each SPSS problem on the assigned due date. After these problems have been graded you will keep them in your cookbook. Your cookbook will be evaluated periodically in class and prior to the final exam.

- 10 points for missing Detailed Tabs and Table of Contents
- 5 points for each missing major topic
- 5 points for each SPSS assignment not completed or not turned in on the due date

Course Modification
The schedule and procedures listed in this syllabus are subject to change in the event of extenuating circumstances.

	Class	Chapter
Jan 23	Introduction to the class / Describing and Exploring Data	1 - 2
Jan 25-30	Describing and Exploring Data / The Normal Distribution The Normal Distribution Setting Probable Limits on an Observation Measures Related to z	2 - 3
Feb 1	Sampling Distributions & Hypothesis Testing Sampling Distributions Logic and Theory of Null Hypothesis Testing **SPSS PROBLEM #1 DUE Feb 1**	4
Feb 6-8	Basic Concepts of Probability Basic Rules Discrete versus continues variables Permutations and Combinations The Binomial Distribution	5
Feb 13-15	Categorical Data and Chi-Square Chi-Square – Test of Independence Chi-Square – Goodness of Fit SPSS	6
Feb 20-22	Hypothesis Testing Applied to Means One Sample Two Matched Samples Two Independent Samples SPSS **SPSS PROBLEM #2 DUE FEB 22**	7
Feb 27	Test Review	
Mar 1	Test #1	
Mar 6-10	No Class	
Mar 13-15	Correlation and Regression The Covariance The Pearson Product-Moment Correlation The Regression Line SPSS **SPSS PROBLEM #3 DUE MAR 15**	9

Mar 20-22	Alternative Correlational Techniques Point-Biserial Correlation and Phi Correlation Coefficients for Ranked Data Kandall Coefficient of Concordance SPSS **SPSS PROBLEM #4 DUE MAR 22**	10
Mar 29 – 29	Multiple Regression Multiple Linear Regression The Multiple Correlation Coefficient Partial and Semipartical Correlation Constructing a Regression Equation Mediating and Moderating Relationships SPSS	15
Apr 3	Test Review **SPSS PROBLEM #5 DUE APR 3**	
Apr 5	Test # 2	
Apr 10-12	Simple Analysis of Variance Underlying model Logic of ANOVA Calculations of ANOVA SPSS	11
Apr 17	No Class	
Apr 19 – 24	Multiple Comparisons Among Treatment Means Error Rates A priori Comparisons Post Hoc Comparisons SPSS **SPSS PROBLEM #6 DUE APR 24**	12
Apr 26 – 1	Factorial Analysis of Variance / No Class Apr 21 Expected Mean Squares Interactions Simple Effects Multiple Comparisons SPSS	13
May 3	Repeated Measures and Mixed Designs One Between- Subjects Variable with One Within-Subjects Variable Two Within-Subjects Variables Two Between- Subjects Variable with One Within-Subjects Variable One Between- Subjects Variable with Two Within-Subjects Variable Three Within-Subjects Variables SPSS **SPSS PROBLEM #7 DUE MAY 3**	14
Final Exam	Test 3 **SPSS PROBLEM #8 DUE ON EXAM DAY**	