

PSY652: Univariate Statistics
Fall, 2001
Castleton State College
Course syllabus

Class meetings: M W F 11:00 - 11:50AM, Room 210 Black Science Center

Instructor: Marc W. Patry, Ph.D., M.L.S.
Email: Marc.Patry@castleton.edu
Telephone: 468-1414
Office hours: M W F 10:00 – 11:00AM, W 1:30 - 3:00PM and by appointment

Class web page: <http://online.vsc.edu/index.html>

Course Texts

Abelson, R. P. (1995). Statistics as principled argument. New Jersey: Lawrence Erlbaum Associates.

Keppel, G., & Zedeck, S. (1989). Data analysis for research designs: Analysis of variance and regression/correlation approaches. New York: W. H. Freeman and Company.

(1994). Publication manual of the American Psychological Association (4th ed.). Washington, DC: American Psychological Association.

Wright, D. B. (1997). Understanding statistics: An introduction for the social sciences. London: Sage.

Supplemental readings as assigned.

Objectives

This course is intended as a foundation. The readings, assignments, and related activities have a distinctly theoretical bent. Of course, we will also practice some computer analyses and a few hand calculations. This course should review what you covered in your undergraduate statistics courses and help you to develop depth of understanding. After taking this course, you should be ready for a course in multivariate analysis. The exercises and activities are meant to help you to gain experience and become comfortable working with statistics. Together we will work on your ability to present statistics to others in both written and oral formats.

Philosophy

I teach this course from a “mastery” perspective. This means that everyone has plenty of opportunity to do very well. As long as you are willing to work hard, there is no reason why you should not receive a high grade in this course. If and when you receive a grade that you are not pleased with, you may re-work the assignment or re-take the exam until you are satisfied with your performance.

Assignments

Assignments are due in class on the posted date. You may turn in assignments more than once if you are not satisfied with your grade, however you forfeit this privilege if I determine

that you have not made a “good faith” effort on your first submission. Resubmissions are to be accompanied by all prior submissions. Late assignments will be reduced by 10% if turned in late on the day they are due and 15% per class meeting after that. Late assignments cannot be resubmitted.

Discussion Board

The Abelson book focuses on conceptual issues about statistics. In order to stimulate serious thought about that book, you will be required to make reasoned responses to questions that I pose about the readings. These discussions will be held electronically on the course Blackboard website. You will be assigned to small groups of 3 or 4 persons per group. Each person is to respond to the discussion questions that I post for the various chapters in the Abelson text. I will offer reactions to your writing, and you will have the opportunity to respond to my comments and to exchange comments and criticism with the other members of your small group. The configuration of the groups may change from time to time. Credit for each portion of the web discussions will be based on a two-point system: 1 point for a good faith initial response posted by the due date, and 1 point when I tell you that have “finished” a particular topic. Participation in these discussions is required in order to receive a final grade in this course.

Final project

You will be required to present an original analysis to me in written format. You will also present the final version of the analysis orally before the class. You are to obtain some “real” data for this analysis. I will make several data sets available to the class, but you are encouraged to find data elsewhere as well. This is a good opportunity to practice your research presentation skills. Detailed guidelines and expectations for the final project are provided under separate cover.

Grading

Your grade will be based on the following components:

Assignments:	25%
Examinations:	25%
Final project:	20%
Discussion board participation:	20%
In-class participation and oral presentations:	10%

Tentative Course Outline

Week	Class	Topic(s)	Reading	Assignment
1	M 8/27	Introduction		
1	W 8/29	Experimental & correlational research designs	Keppel&Zedeck Chs.1, 2, and 3	

Week	Class	Topic(s)	Reading	Assignment
1	F 8/31	Descriptive vs. inferential statistics, reliability & validity, sample selection & sample bias		
2	W 9/5	Levels of measurement, Central tendency	Abelson Ch.1, Keppel&Zedeck Ch.4.1, Wright Ch.1	Discussion board, Homework 1 due
2	F 9/7	Dispersion	Keppel&Zedeck Ch.4.2-4.4, Wright Ch.2	
3	M 9/10	Fundamentals of null hypothesis significance testing	Abelson Ch.2	Discussion board
3	W 9/12	Paired t-test, introduction to confidence intervals	Wright Ch.3	Homework 2 due
3	F 9/14	Standard (group) t-test, introduction to power analysis, introduction to effect size estimates	Wright Ch.4	
4	M 9/17	Correlation	Keppel&Zedeck Ch.5, Wright Ch.5	Homework 3 due
4	W 9/19	Introduction to Linear regression		
4	F 9/21	Exam 1		
5	M 9/24	Two-group ANOVA	Abelson Ch. 3, Keppel&Zedeck Ch.6, Wright Ch.6	Discussion board
5	W 9/26	Two-group ANOVA		
5	F 9/28	Two-group ANOVA		
6	M 10/1	Chi-square	Wright Ch. 7	

Week	Class	Topic(s)	Reading	Assignment
6	W 10/3	Correlational analysis of experimental data	Keppel&Zedeck Ch.7	
6	F 10/5	Catch-up and review		
7	M 10/15	Null hypothesis significance testing (NHST)	Abelson Ch. 4, Keppel&Zedeck Ch.8	Discussion board
7	W 10/17	Problems with NHST & alternatives to NHST	Outside reading 1: Cohen, 1994	Homework X due
7	F 10/19	Future directions re: NHST	Outside reading 2: Wilkinson et al., 1995	Discussion board
8	M 10/22	Coding of experiments for regression analysis	Abelson Ch.5, Keppel & Zedeck Ch.9	Discussion board
8	W 10/24	Coding of experiments for regression analysis		
8	F 10/26	Exam 2		
9	M 10/29	Overall analysis of the single-factor design (more than two-groups)	Abelson Ch.6, Keppel&Zedeck Ch.10	Discussion board
9	W 10/31	Overall analysis of the single-factor design (more than two-groups)		
9	F 11/2	Overall analysis of the single-factor design (more than two-groups)		
10	M 11/5	Detailed analysis of the single-factor design (more than two-groups)	Abelson Ch. 7, Keppel&Zedeck Ch.11	Discussion board
10	W 11/7	Detailed analysis of the single-factor design (more than two-groups)		

Week	Class	Topic(s)	Reading	Assignment
10	F 11/9	Detailed analysis of the single-factor design (more than two-groups)		
11	M 11/12	Correction for multiple comparisons	Abelson Ch. 8, Keppel&Zedeck Ch.12	Discussion board
11	W 11/14	Introduction to the two-factor design	Keppel&Zedeck Ch.13	
11	F 11/16	Introduction to the two-factor design		
12	M 11/26	Analysis of main and simple effects	Abelson Ch. 9, Keppel&Zedeck Ch.14	Discussion board
12	W 11/28	Analysis of main and simple effects		Final project due
12	F 11/30	Exam 3 (cumulative)		
13	M 12/3	Student Presentations		
13	W 12/5			
13	F 12/7			
14	M 12/10			
14	W 12/12			
14	F 12/14			