S Y L L A B U S

PSY 612: DATA ANALYSIS II

Winter 1991

0.0 Catalog Details

9:30-10:50 UH+Lab 154 Straub

[Kristine Taylor will arrange the time for the laboratory meetings after consulting the students.]

Instructor: Ray Hyman
323 Straub/346-4910
Office Hours: M 2:00-3:30PM, F 1:00-2:30PM

TA: Kristine Taylor
391 Straub/346-3942
Office Hours: [To be announced]

1.0 Assumed Background of Students

I assume that you have had Psy 611 or the equivalent. This would include familiarity with basicc statistics including inference, power and sample size, correlation and regression, and the analysis of variance. I also assume you have some familiarity with estimating components of mean squares for fixed effects, random effects and mixed models.

We expect that you can use the SAS statistical package. Each of you will be assigned an account on the UO computer for use of this package. For some purposes the GANOVA statistical package supplied on the DOS diskette will be adequate. But, for the most part, you will need access to the SAS package. If you have access to other statistical packages such as SYSTAT or SPSS check with us to see if they will suffice for the various assignments.

2.0 Text:

Woodward, J.A., Bonett, D.G., & Brecht, M. (1990). Introduction to linear models and experimental design. New York: Harcourt Brace Jovanovich.

You will also need to own or have access to the current manuals for using the SAS package.

3.0 Course Requirements and Grading

In addition to reading the text at the assigned times you will be given weekly homework assignments, a takehome midterm, and a takehome final examination. Your grade in the course will be based on your scores on the homework (20%), the midterm (30%), and the final examination (50%). Homework and examinations must be handed in at the designated time to receive full credit. Please note that the laboratory meetings have the same status as class meetings.

4.0 Course Coverage: Data Analysis II will deal with univariate and multivariate analysis of variance within the framework of the general linear model. The emphasis will be on specifying hypotheses for complete and incomplete factorial designs. (Data Analysis III will cover univariate and multivariate correlational procedures).

5.0 Data Sets

In addition to the hypothetical data sets in the textbook, we will use real data sets for some of the homework assignments. These data sets will be available to you on the UO computer. Kristine Taylor will give you the file names and the descriptions of each data set in the laboratory sessions.

6.0 Calendar and Topics

WEEK	ASSIGNMENT	TOPICS
1 Jan 8, 10	Appendix A Pp 468-498 Ch 3 118-132 Homework 1	Matrix Notation for linear models. Multiple Regression and the General Test of Significance.
2 Jan 15, 17	HW 1 due Jan 15 Ch 3 133-164 HW 2	ANOVA Models. Cell Means Model. Less than Full Rank Model. Dummy coding, Effects Coding. Parameter estimation and hypothesis testing. General Linear Hypothesis.

3 Jan 22, 24	HW 2 due Jan 22 Ch 3 133-164 Ch 4 171-187 HW 3	Testing several hypotheses. Single Factor Designs. Omnibus Hypothesis Matrix. Specific Contrasts. Kronecker product.
4 Jan 29, 31	HW 3 due Jan 29 Ch 4 187-221 MIDTERM HANDED OUT	Three Factor Anova. Quantitative factors. Incomplete and unbalanced designs.
5 Feb 5, 7	MIDTERM due Feb 5 Ch 5 224-251 HW 4	Taxonomy of Experimental Designs.
6 Feb 12, 14	**HW 4 due** **Feb 12** **Ch 6: 252-275** **HW 5**	Univariate ANOVA. Diagnostics: Normality, Homoscedasticity, Outliers. Transformations. Power and sample size. Test of the General Linear Hypothesis.
7 Feb 19, 21	HW 6 due Feb 19 Ch 6: 275-332 HW 7	Univariate ANOVA continued. Single Treatment. Orthogonal Polynomials. Complete and Incomplete Factorial Designs. Random Factors. Error Mean Squares.
8 Feb 26, 28	HW 7 due Feb 26 Ch 7: 339-372 HW 8	MANOVA MODEL. Compound Symmetry. Modified Wald Test. Alternative Multivariate Tests. Assumptions. Outliers. Power.
9 Mar 5, 7	HW 8 due Mar 5 Ch 7 372-425 FINAL EXAM HANDED OUT	MANOVA continued. Discriminant functions. Classification. Canonical variates.
Wed Mar 13	FINAL EXAM DUE	**Your completed final examination must be handed in before 4:00 PM on Wednesday, March 13, 1991.**