**Sociology 680**

**Advanced Quantitative Methods**

**Fall 2014**

**Course Syllabus**

<http://www.csun.edu/~vcsoc00i/classes/s680f14/homepage.htm>

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You are enrolled in Sociology 680, Advanced Qualitative Methods, which meets on Tuesdays from 6:00 to 8:45 pm in Sierra Hall 160, during the fall 2014, starting August 26th and ending on December 16th. This is a course in the graduate department of Sociology based on the premise that graduate students who are intending to continue on in research, either for the M.A. thesis or future Ph.D. preparation, need a foundation in advanced multivariate models and techniques required to conduct basic research. Accordingly, this course involves a once a week three hour lecture, encompassing: 1) two-quizzes, 2) a take home final, 3) a course paper and 4) weekly assignments, each of equal weight in grading. More importantly it seeks to accomplish three learning outcomes: the first is an appreciation of the overall framework of multivariate statistics in the pursuit of research findings and publication, including the role of descriptive vs. inferential models in multivariate analysis; the second is the more specific application of multivariate statistical modeling, based upon the appropriate levels of measurement used as the metric for the independent vs. dependent variable; the third is the mastery of a program facilitating such analysis (in this case the Statistical Package for the Social Sciences), while using recognized databases such as ICPSR and GSS in performing the secondary analysis. In a larger sense, however, this course seeks to establish a methodology for critical thinking in engaging and processing the myriad of data likely to be found in social science research.

**Frequently Asked Questions**

**Textbooks:** The required text is *Advanced and Multivariate Statistical Methods, Practical Applications and Interpretation* by Graig A. Mertler and Rachel A. Vannatta; Pyrczak Publications. In addition, *Discovering Statistics Using SPSS, 3rd Edition* by Andy Field is recommended, but not required. Do not purchase this second book, however, until after the first day of class, allowing us to have had the opportunity to discuss possible cost cutting measures.

**Grading:** The class will consist of lecture/discussion (real time and virtual) and readings. Grades will be based upon 1) two in class quizzes, 2) a take home cumulative final, 3) a presented paper and 4) weekly assignments. Participation in each of these four venues will be weighted 25% of the total grade. Hence, your score of 50 points each, for a total of 200 points, will comprise your class grade. Plus/minus grading will be used.

**Communication:** In addition to real time class attendance, a variety of virtual techniques will be implemented. As part of our communication, you will be utilizing the Internet, email, blogging and chat to facilitate interaction during the course of the semester and to supplement the hours not formally held in the class. Some programs are unique to campus and are best used by installing VPN on your home or laptop computer. As well, you may follow events on both the class website: [www.csun.edu/~vcsoc00i/classes/s680f14/announce.htm](http://www.csun.edu/~vcsoc00i/classes/s680f14/announce.htm) and in [Moodle at s680f1](http://moodle.csun.edu)4.

**Office hours:** Office hours will be held in real time, Thursday 6:00-7:00 pm, Sunday 6:00-7:00 pm and each Tuesday night immediately after class at 8:45 pm; otherwise by appointment. For those unable to meet in person, we can hold discussions via telephone and Blackboard Collaborate (chat). If several of you wish to form a study group, we can arrange routine alternative meeting times to review material.

**Classroom Expectations**: You are expected to attend each Tuesday session. The dates on the attached calendar, contained herein, are immutable. That is, test dates will not change. Therefore, plan your social calendar accordingly. While I will attempt to ensure that no full Tuesday class will be cancelled, expect that at least one day may involve my being out of town. If that occurs, I will provide for an alternative session, via Blackboard Collaborate. In any event, this timing will be articulated well in advance and will not affect any test dates.

**Study Habits:** This class is a graduate class. Therefore, you need to identify with it accordingly. This will necessitate planning for study time of at least 10-15 hours per week. As well, it will require pro-activity in applying these hours. Read the materials in advance of the lecture, review on a regular basis and establish cohorts with whom you can communicate and study. Come to class well rested and ready to ask questions.

**Miscellaneous:** If disability is an issue, please register [here](http://www.csun.edu/dres/studentservices/index.php). Otherwise, there will be no cheating and no plagiarism. If any question about this, check [here](http://www.csun.edu/science/help/help_docs/plagiarism.html) for details. That said, we will be forming groups to facilitate the weekly projects and will be submitting feedback on the procedures, via groups. We will discuss more this the first day of class.

**Course Outline**

**I. INTRODUCTION TO ADVANCED QUANTITATIVE METHODS**

1. Week One - Aug 26 **Introduction / Orientation:** Discussion of the goals/logistics/

expectations/grading/class participation/use of SPSS/ICPSR.

Readings: Mertler, Chapter 1 / Field – Chapter 1 & 3

2. Week Two - Sept 02 **A Guide to Statistics & Multivariate Techniques:** Review of general statistics, algebra and calculus in multivariate thinking.

Readings: Mertler, Chapter 2 & 3 / Field Chapter 2 & 4

**II. MEASURES OF ASSOCIATION - QUANTITATIVE PREDICTION**

3. Week Three - Sept 09 **Models Using Simple Correlation and Regression:**

Review of bi-variate correlation/regression and partial analysis

Readings: Field Chapter 6 & 7

4. Week Four - Sept 16 **Measures Using SEM and Path Analysis**

Review of partial association and temporal modeling

Readings: Mertler, Chapter 7 & 8

**III. MEASURES OF ASSOCIATION - QUANTITATIVE DESCRIPTION**

5. Week Five - Sept 23 **Models Using Factor Analysis:** Review of latent,

structure, shared variation and factor loading methodology.

Readings: Mertler, Chapter 9 / Field Chapter 17

6. Week Six - Sept 30 **Models Using Cluster Analysis**

Review of non-quantitative version of latent/factor analysis

Readings: Handout

**IV. FIRST QUIZ (QUANTITATIVE MODELS OF ASSOCIATION)**

7. Week Seven - Oct 07 **First In-Class Exam**

**V. MEASURES OF ASSOCIATION - NON-QUANTITATIVE PREDICTION**

8. Week Eight - Oct 14 **Models Using Discriminant Analysis**

Review of technique used to classify groups via multi-measures

Readngs: Mertler, Chapter 10

9. Week Nine - Oct 21 **Models Using – Log Linear and Logistic Regression**

Review of Descriptive / Predictive models where DV is NQ.

Readings: Mertler, Chapter 11 / Field, Chapter 8.

**VI. SECOND QUIZ (QUANTITATIVE MODELS OF ASSOCIATION)**

10. Week Ten - Oct 28 **Second In-Class Exam**

**VII. MEASURES OF DIFFERENCES - INDEPENDENT MODELS**

11. Week Eleven - Nov 04 **Measures of Difference: Analysis of Variance**

Review of simple test of significance using single IV.

Readings: Mertler, Chapter 4; Fields, Chapter 9 & 10 and 12.

12. Week Twelve -Nov 11 **Veteran's Day - No Class**

**VIII. MEASURES OF DIFFERENCES - DEPENDENT MODELS**

13. Week Thirteen - Nov 18 **Measures of Differences: Analysis of Covariance**

Review of tests of differences involving correlated DV variables.

Readings: Mertler, Chapter 5 / Field, Chapter 11

14. Week Fourteen - Nov 25 **Measures of Differences: Multivariate Analysis of Variance**

Review of tests of differences involving multiple DV variables.

Readings: Mertler, Chapter 6 / Field, Chapter16.

**IX. PRESENTATION OF PAPERS**

15. Week Fifteen - Dec 02 **Presentation of Papers:** Based upon individuals choosing a data set and analyzing such data through one or more techniques discussed in class

**X. FINAL EXAMINATION - TAKE HOME**

16. Week Sixteen - Dec 09 **Final Examination:** Take home exam reviewed given out and

due on the Dec 16th. Based on correctly identifying analyses done in published articles with specific data / techniques