COM 631: Multivariate Statistical Methods

Spring 2011
6-8 pm, Monday/Wednesday
MU 208 (& occasionally MU 222 or MU 228)
Prof: Kim Neuendorf          Office hrs.:
MU 241                      Tues. 2:00-4:00 & Wed. 1:00-3:00
216-687-3994               & by appt.
email: k.neuendorf@comcast.net
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COURSE OBJECTIVE: Building on the foundation of COM 512, this course will cover more advanced quantitative analysis, with an emphasis on multivariate statistics. Inasmuch as the goal of the course is to develop your skills as designers, commissioners, and interpreters of research, an emphasis will be placed on the use and interpretation of complex statistics, rather than on the mechanics of their calculation. In the class, we will make frequent use of the data analytic computer package SPSS.

COURSE MATERIALS:

The following text is required:


Old required readings:

*Many handouts prepared by your instructor will be distributed in class or posted on the class web site throughout the term.

*Other required articles or chapters will be distributed in class or posted on the class web site.

*It’s recommended that students have available a manual or textbook on the use of SPSS. The following is recommended:


The following texts are recommended for backup, and for additional information on selected topics:


COURSE REQUIREMENTS:
Further information on each of these assignments will be discussed in class as the term progresses:

1. A midterm and a final exam. The midterm will have both take-home and in-class components, and the final exam will be take-home. The midterm take-home and the final exam both will include the requirement of some SPSS analyses. The final will include the critique of at least one published research article. The full midterm is worth 20% and the final exam 15% of your course grade. The in-class midterm will be held on Wed., March 9, and the take-home component will be due on the same day. The final exam will be due at 6 pm on Wed., May 11.

2. Data handling assignments--each student will be required to perform a number of data-handling tasks. Each student will be asked to conduct a variety of analyses on the data, including scale construction (worth 5%) and the running of multivariate statistics that are not included in the exams, presentation, or final project (worth 15%). All data handling assignments together are worth a total of 30% of your course grade.

3. In-class presentation on one multivariate statistic--each student will be assigned a technique to learn in detail, with one or two other students. The small-group presentation will include sample SPSS commands and output exemplifying the statistic as derived from a class data set. It will also include the findings correctly tabled, with a short written description of the findings. Each presentation is worth 20% of your grade. All presentations will be reviewed with the instructor prior to presentation.

4. A research report--this paper will include the development and testing of hypotheses using multivariate statistics, using a class data set and the SPSS program. Specific details on this assignment will be distributed in class. Students should plan on handing in both output and a complete, written analysis, worth 15% of your grade.

To summarize:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>MIDTERM (2 parts)</td>
<td>40 pts.</td>
<td>20%</td>
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<tr>
<td>FINAL EXAM</td>
<td>30 pts.</td>
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<tr>
<td>DATA HANDLING (various tasks)</td>
<td>60 pts.</td>
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<td>PRESENTATION</td>
<td>30 pts.</td>
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<tr>
<td>REPORT</td>
<td>40 pts.</td>
<td>20%</td>
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<td>200 pts.</td>
<td>100%</td>
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COURSE OUTLINE:

1. A review of univariate and bivariate statistics  Hair et al., Chs. 1, 2
2. SPSS & data handling and Scale construction
3. Factor analysis  Hair et al., Ch. 3
4. Multiple regression  Hair et al. Chs. 4
5. Discriminant analysis  Hair et al. Ch. 5
6. Logistic regression  Hair et al. Ch. 6
7. Multivariate analysis of variance (MANOVA) and covariance (MANCOVA)  Hair et al. Ch. 7
8. Conjoint analysis  Hair et al. Ch. 8
9. Canonical correlation  TBA
10. Cluster analysis  Hair et al. Ch. 9
11. Multidimensional scaling and Correspondence analysis  Hair et al. Ch. 10, 11
12. Structural equation modeling  Hair et al. Chs. 12-15
13. Emerging techniques in multivariate analyses  TBA