Applied Multivariate Statistical Methods
Psychology 421L
Spring Semester 2011

Class meets: 12:00-1:50 PM, Tuesday and Thursday, SGM 226
Instructor: Richard S. John, Ph.D.
Office: SGM 621
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Office Hrs. Tues. & Thurs., 2:00 PM (after lectures)
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All assignments, readings, datasets, and grades will be posted on Blackboard: http://blackboard.usc.edu

Catalog Description:
Psychology 421L (4 units, 8 units max). Multivariate analysis emphasizing model estimation and testing; topics vary, e.g., multiple regression, logistic regression, factor analysis, multilevel linear modeling, structural equation modeling, multiway frequency analysis. Prerequisites: Psyc 314 or equivalent.

Required Text:

Grading:
Grades will be determined from 2 midterm exams, each worth 10%, 6 mini-projects, each worth 10%, and a cumulative final exam worth 20%. The assignments are designed to allow you to apply multivariate statistical methods using actual data, and include interpretation and reporting of results in various brief formats (poster, presentation, and APA formatted results section). All assignments are due IN CLASS on the due date. Assignments must be submitted in a printed form. A 10% penalty per day applies to all late assignments.

Statement for Students with Disabilities
Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.
Statement on Academic Integrity
USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: http://www.usc.edu/dept/publications/SCAMPUS/gov/. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/.
# Course Outline

**Applied Multivariate Statistical Methods**  
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<table>
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<tr>
<th>Wk</th>
<th>Topic</th>
<th>Chapter</th>
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| Jan 11,13 | **Introduction; Data Analysis:** DATA = MODEL + ERROR  
Simple Models: Definitions of error | 1       |
| Jan 20 | Models of error and sampling distributions                            | 2       |
| Jan 25,27 | Statistical inference about model parameters  | 3       |
| Feb 1,3 | Regression models with one continuous predictor                      | 4       |
| Feb 8,10 | Multiple regression:  
Models with 2 or more continuous predictors                         | 5       |
| Feb 15,17 | Multiple regression:  
Modeling interactions and nonlinear relationships | 6       |
| Feb 22,24 | Models with one categorical predictor (ANOVA) | 7       |
| Mar 1,3 | Models with multiple categorical predictors and  
Product terms (Factorial ANOVA)                                       | 8       |
| Mar 8,10 | Models with continuous & categorical predictors (ANCOVA) | 9       |
| Mar 15,17 | Spring Break                                                         | 10      |
| Mar 22,24 | Models with dependent errors  
(Repeated measures ANOVA)                                              | 11      |
| Mar 29-31 | Logistic regression (vs. Discriminant analysis)                      | Handout |
| Apr 5,7 | Multi-level modeling (MLM)                                            | 12      |
| Apr 12,14 | more MLM aka Hierarchical Linear Modeling                           | Handout |
| Apr 19,21 | Violations of assumptions; non-parametrics                          | 13      |
| Apr 26,28 | Review and catch-up                                                 |         |