

JOMC 704.001 – Statistical Methods for Mass Communication Research
Course Syllabus
Fall 2015

Professor: Francesca Dillman Carpentier
Office: Room 327
Office Phone: 919-843-1035
Cell Phone: 919-259-0092
E-mail: francesca@unc.edu

Class Hours: TR 9:30am-10:45am
Classroom: 58 Carroll Hall

Suggested texts (there are no required textbooks):

Weber, R., & Fuller, R. (2013). *Statistical Methods for Communication Researchers and Professionals*. First Edition. Dubuque, IA: Kendall Hunt.

Kranzler, J.H. (2007). *Statistics for the terrified*, 4th edition. Upper Saddle River, NJ: Pearson Education, Inc. (great introductory primer in paperback, with SPSS examples)

Stockburger, D. *Introductory Statistics: Concepts, Models, and Applications*. (comprehensive, contains SPSS examples, available free at <http://www.psychstat.missouristate.edu/introbook/sbk00.htm>)

StatSoft Electronic Textbook (a bit advanced, available free at <http://www.statsoft.com/textbook/>)

HyperStat Online (simpler, goes through ANOVA and Chi-Square, available free at <http://davidmlane.com/hyperstat/>)

Hayes, A. F. (2005). *Statistical methods for communication science*. Mahwah, NJ: Erlbaum. (goes more into depth with mathematics)

Sign up for free at Code School to learn free statistics program R at <http://www.codeschool.com/courses>

Course philosophy:

In this course, I hope to help you understand when and why to use a particular statistical test to address a given research question, as well as understand research that uses quantitative methods. We will cover when a parametric versus nonparametric test should be used, when it is more appropriate to use a test of group differences as opposed to a correlation-based analysis, what mediator and moderator variables are, and tests and limitations of assessing reliability of measurements. The course will be rooted in practice and interpretation of real

data sets (using SPSS) and will involve some by-hand calculations involving basic algebra (higher-order math, e.g., calculus, not needed).

Attendance Policy:

Each student gets two free absences. Each absence after the two results in a half-grade deduction (e.g., a B becomes a B- at three absences).

Late Tests/Assignments:

There will be no make-ups for tests and tests turned in after the day/time they are due will receive an automatic 10% (whole letter grade) deduction for every day it is late. Assignments are expected to be turned in at the beginning of class the day they are due. Whereas there is no grade or points assigned to homework, completion of homework is necessary to practice the skills learned in class.

Grading:

Students are graded according to the highest professional standards. As with most other graduate courses in this school, grades are H (high pass), P (pass), L (low pass) and F (fail). Below are the equivalencies for each grade:

F (fail) = 69% or less (a “D” or below)

L (low pass) = 70-79% (a “C” grade)

P (pass) = 80-89% (a “B” grade)

H (high pass) = 90-100% (an “A” grade)

Honor Code:

It is expected that each student in this class will conduct him/herself within the guidelines of the Honor System. All academic work should be done with the high level of honesty and integrity that this University demands.

Class Requirements-

Exams (80%):

There are two take-home exams with no make-up opportunities:

- Test 1 worth 35% of the total grade, covering Lessons 1 through 4,
- Test 2 worth 45% of the total grade, covering Lessons 1 through 7.

Exams are predominantly data analysis/presentation, short-answer and multiple choice. Exams cover lecture material and homework.

Assignments (20%):

Assignments are not graded for accuracy (they are graded for completion, however), but they are good for you to do. This is the primary way to receive constant feedback on the skills covered in the lessons. As there are in-class computer assignments, you will need to either use classroom computers or use a laptop with SPSS access (e.g., your own SPSS program copy or a wireless Internet connection to get to SPSS from Virtual Lab, <https://virtuallab.unc.edu/>).

Tentative Course Schedule (subject to change)

Readings listed correspond with lecture material for that day. Readings are meant as supplements to the lectures--examples of use of the analyses covered in class.

Aug 18	Lesson 1	Variables and Distributions <i>Types of data (e.g., nominal, ordinal, interval, ratio)</i> <i>Parametric versus nonparametric data</i> <i>Frequency distributions, bar charts, pie charts;</i> <i>Histograms, stem plots;</i> <i>Mean, median, standard deviation, variance, range, inter-quartile range, box plots</i> <i>Central Limit Theorem</i>
Aug 20	Lesson 1	Variables and Distributions <i>continued</i> Assigned: HW1a-Variables and Distributions
Aug 25	Lesson 1	Variables and Distributions <i>continued</i> <i>z-scores, standardizing</i> Assigned: HW1b-Standardizing (HW1a due beginning of class)
Aug 27	Lesson 2	Group Differences: The <i>t</i> -test <i>The t-test calculation</i> <i>Hypothesis testing, inference</i> <i>Types of error</i> <i>Margin of error, confidence intervals, confidence levels</i> (HW1b due beginning of class)
Sept 1	Lesson 2	Group Differences: The <i>t</i> -test <i>continued</i> Reading example: Cooper & Tang Reading example: Haynes, Shoemaker, & Lacy
Sept 3	Lesson 2	Group Differences: The <i>t</i> -test <i>continued</i> Assigned: HW2- <i>t</i> -test
Sept 8	Lesson 3	Group Differences - One-way ANOVA <i>One-way ANOVAs</i> <i>Calculation of F-statistic</i> <i>appropriate kinds of variables</i> (HW2 due beginning of class)
Sept 10	Lesson 3	Group Differences - One-way ANOVA <i>continued</i> Assigned: HW3a-ANOVA calculation
Sept 15	Lesson 3	Group Differences - One-way ANOVA <i>continued</i> <i>Post-hoc tests</i> Assigned HW3b-ANOVA calculation and post-hoc (HW3a due beginning of class) Reading example: Etling & Young

Sept 17	Lesson 4	Factorial ANOVAs I <i>Mediator versus moderator variables</i> <i>Interpreting interactions, post-hoc tests, plots, presentation</i>
Sept 22	Lesson 4	Factorial ANOVAs I <i>continued</i> Assigned: HW4a-Factorial ANNOVA concept
Sept 24	Lesson 4	Factorial ANOVAs I <i>continued</i> Assigned: HW4b-Factorial ANOVA and post-hoc (HW4a due beginning of class) Reading example: Munyofu et al. Reading example: Punyanunt-Carter et al.
Sept 29	Review	Review, questions, catch-up Assigned: Take-Home Test 1 (HW4b due beginning of class)

Take-Home Test 1 (covers Lessons 1 through 4) - Due Tuesday Oct 6 by midnight

Oct 1	Lesson 5	Association <i>Scatter plots</i> <i>Pearson Correlation Coefficient</i> <i>Reliability</i> <i>Effect Sizes</i>
Oct 6	Lesson 5	Association <i>continued</i> (Take Home Test 1 due today by midnight)
Oct 8	Lesson 5	Association <i>continued</i> Assigned: HW5-Association
Oct 13	Review	Revisiting Lessons 1 through 4 Discussion of Test 1

(Fall Break begins Oct 14 5pm and ends Oct 19 8am)

Oct 20	Lesson 6	Simple Linear Regression <i>Line estimation</i> <i>Types of hypotheses, appropriate variables</i> (HW5 due beginning of class)
Oct 22	Lesson 6	Simple Linear Regression <i>continued</i>
Oct 27	Lesson 6	Simple Linear Regression <i>continued</i> Assigned: HW6-Simple Regression

Oct 29	Lesson 7	Multiple Regression <i>Multiple linear regression</i> <i>Goodness of fit statistics</i> <i>Multicollinearity</i> (HW6 due beginning of class) Reading example: Brubaker
Nov 3	Lesson 7	Multiple Regression <i>continued</i> <i>Different types of linear regressions</i> <i>Hierarchical linear regression</i> Assigned: HW7a-Multiple Regression, Collinearity
Nov 5	Lesson 7	Multiple Regression <i>continued</i> <i>Mediation, briefly</i> Assigned: HW7b-Hierarchical Linear Regression (HW7a due beginning of class) Reading example: Nichols et al. Reading example: Grabe & Drew
Nov 10	Lesson 8	Factor Analysis Crash Course <i>Testing validity with factor analyses</i> <i>Orthogonal versus oblimin rotations</i> <i>Different types of extractions</i>
Nov 12	Lesson 8	Factor Analysis Crash Course <i>continued</i>
Nov 17	Lesson 8	Factor Analysis Crash Course <i>continued</i> Assigned: HW8-Factor Analysis
Nov 19	Lesson 9	Nonparametric tests <i>Chi-square tests, Mann-Whitney U tests, Spearman R</i> Reading example: Maynard & Taylor
Nov 24	Lesson 9	Nonparametric tests <i>continued</i> Assigned: HW9- Chi-Square (HW8 due beginning of class)
Dec 1	Review	Review of Lessons 1 through 7 (HW9 due beginning of class) Assigned: Take-Home Test 2

(Classes end Dec. 2; Exam Period ends Dec. 11)

Take-Home Test 2 (covers Lessons 1 through 7) - Due Tuesday Dec 8 by midnight