

## Statistical Software and Tests Resource List

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## General Resources:

**CARMA:** <http://carma.wayne.edu/onlineworkshops.asp>

Workshops offered through the video library programs and webcasts. Workshops are offered on a number of different statistical and research related topics. Workshops are free for members.

**The Analysis Factor:** [www.theanalysisfactor.com](http://www.theanalysisfactor.com) This website offers statistical consulting, resources, and training. Several resources are offered at different price points; some are even free of charge. Monthly newsletters are also available.

**UCLA IDRE** (Institute for Digital Research and Education)

<http://www.ats.ucla.edu/stat> This website offers a number of different sites, workshops and online classes for various statistical tests and software.

**East Carolina University** <http://core.ecu.edu/psyc/wuenschk/statistics.htm> This website has a number of different resources for statistics tests and software. It contains links to a number of more detailed webpages.

**Statistics.com** <http://www.statistics.com/> This webpage offers a wide range of links for a number of different statistical tests. There are links to online courses, relevant blogs, and other continuing education opportunities.

**Med Calc** <http://www.medcalc.org/manual/index.php> This site provides instructions for a range of statistical tests and statistical software functions.

## Statistical Software

### STATA

- **STATA** [www.stata.com/links/](http://www.stata.com/links/) The links section of this website offers various resources in regards to learning the program, training and other tutorial opportunities.
- **UCLA IDRE** (Institute for Digital Research and Education) <http://www.ats.ucla.edu/stat/stata/> This website offers a STATA starter kit, learning modules and online classes and training.
- **Princeton Data** <http://data.princeton.edu/stata/> This website walks the user through an introduction and tour of the STATA program. It also offers a number of resources and tips on using STATA effectively.
- **Stanford Guides** [http://www.stanford.edu/group/ssds/cgi-bin/drupal/files/Guides/Resources for Learning Stata 0.pdf](http://www.stanford.edu/group/ssds/cgi-bin/drupal/files/Guides/Resources%20for%20Learning%20Stata%200.pdf) This document provides a number of supports for learning and using STATA. It provides a list of useful manuals, web sites and books.

## SPSS

- **University of North Texas** [http://www.unt.edu/rss/class/Jon/SPSS\\_SC/](http://www.unt.edu/rss/class/Jon/SPSS_SC/) [This webpage offers](#) SPSS tutorials.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4<sup>th</sup> edition). Thousand Oaks, CA: Sage.
- **UCLA IDRE** (Institute for Digital Research and Education) <http://www.ats.ucla.edu/stat/spss/> This website offers an SPSS starter kit, classes and seminars and various links to help trouble shoot.
- **IBM SPSS Software** <http://www-01.ibm.com/software/analytics/spss/resources.html> This website offers a number of customer resources, from troubleshooting tips to training and certification through an online program.
- **East Carolina University** <http://core.ecu.edu/psyc/wuenschk/spss.htm> This webpage contains a number of useful links for the various statistical functions in SPSS.
- **Cal State LA** <http://web.calstatela.edu/its/training/spss.php> This webpage contains links to a number of different training modules for SPSS functions.
- **Northwestern University Library** <http://libguides.northwestern.edu/content.php?pid=99931&sid=750098> This detailed webpage contains some very basic SPSS definitions, as well as a number of online resources, links, and online training for various SPSS functions.

## EXCEL

- **University of South Carolina Excel Guide** [http://www.chem.sc.edu/faculty/morgan/resources/Excel/Excel\\_Guide\\_Morgan.pdf](http://www.chem.sc.edu/faculty/morgan/resources/Excel/Excel_Guide_Morgan.pdf) This PDF document provides a detailed guide for performing statistical calculations and plotting data in EXCEL.
- **Northwestern University** <http://libguides.northwestern.edu/content.php?pid=99931&sid=750096> This website offers a number of tutorials for EXCEL (both online training programs and tutorials) as well as recommended books.
- **Oxford University Press** [http://global.oup.com/uk/orc/sociology/brymansrm4e/01student/excel\\_tutorials/](http://global.oup.com/uk/orc/sociology/brymansrm4e/01student/excel_tutorials/) This website offers a number of tutorials and techniques. It provides the user with a guide for using EXCEL in a number of different statistical tests.
- **Excel 2010 Statistics** <http://www.youtube.com/playlist?list=PLFAD0C5745D4A1F60> This page provides a thorough list of tutorials on performing statistical functions in Excel, including instructions on functions, charts, and Pivot Tables.

## HLM (Hierarchical Linear Modeling)

- **UCLA IDRE (Institute for Digital Research and Education)** <http://www.ats.ucla.edu/stat/hlm/> This website offers links to frequently asked questions as well as textbooks examples for using HLM.
- **Stanford Guides** [http://www.stanford.edu/group/ssds/cgi-bin/drupal/files/Guides/1112\\_ResourcesHLM.pdf](http://www.stanford.edu/group/ssds/cgi-bin/drupal/files/Guides/1112_ResourcesHLM.pdf) This document provides resources for learning HLM. This document also provides a list of tutorials, books and other online resources.
- **Statistics Solutions** <https://www.statisticssolutions.com/academic-solutions/resources/directory-of-statistical-analyses/hierarchical-linear-modeling/> This website walks through the main terms and assumptions and questions that relate to HLM.

## SEM (Structural Equation Modeling)

- **OpenMx** <http://openmx.psyc.virginia.edu/sem-resources> This website offers various SEM software links as well as a list of books and online resources for SEM.
- **Stats Make Me Cry** <http://www.statmakemecry.com/smmctheblog/wonderful-how-to-resources-for-learning-structural-equation.html> This comprehensive blog offers a very basic overview of SEM, as well as a number of links to SEM resources.
- **StatSoft** <https://www.statsoft.com/Textbook/Structural-Equation-Modeling> This is an online textbook that walks through SEM offering a step-by-step overview.
- **Taylor and Francis Online Journal** <http://www.tandfonline.com/toc/hsem20/current#.UxQHD16XuWc> This online journal focuses on structural equation modeling. There is a fee for access to this journal unless you already have a subscription.
- **Chapter on Structural Equation Modeling** [http://www.terry.uga.edu/~rgrover/chapter\\_17.pdf](http://www.terry.uga.edu/~rgrover/chapter_17.pdf) This book chapter focuses on structural equation modeling. The authors provide a detailed introduction as well as in depth discussion of this statistical function.

## AMOS

- **IBM Software** <http://www-03.ibm.com/software/products/en/spss-amos/> This webpage provides an overview and other resources for using AMOS in statistics.
- **University of Edinburgh** <http://www.ed.ac.uk/schools-departments/information-services/research-support/research-computing/statistics/supported-pkgs/amos> This webpage offers a number of resources for using AMOS, as well as links for additional support for using AMOS.

- **Basic Analysis of AMOS** <http://www.youtube.com/watch?v=efC81f-Z22Q>  
This YouTube video talks the viewer through using AMOS. This video uses pictures of the computer screen so that viewers can easily follow along.

## MPLUS

- **The Stat Model (MPLUS)** [www.statmodel.com](http://www.statmodel.com) This webpage offers mini stats courses. Registered users can download the most updated versions and information through their website.
- **UCLA IDRE (Institute for Digital Research and Education)** <http://www.ats.ucla.edu/stat/mplus/> This webpage offers links to seminars, online training, and other resources for support for MPLUS.
- **MPLUS Users' Guide** <https://www.statmodel.com/download/usersguide/Mplus%20Users%20Guide%20v6.pdf> This PDF is a highly detailed user guide for MPLUS in Statistics.
- **York University** [http://www.yorku.ca/pek/index\\_files/quickstart/MplusQuickStart.pdf](http://www.yorku.ca/pek/index_files/quickstart/MplusQuickStart.pdf) This PDF provides an introduction to using MPLUS. This includes detailed syntax for several MPLUS operations.
- **UITS Research Technologies** <http://rt.uits.iu.edu/visualization/analytics/stats/mplus.php> This webpage offers a brief overview of MPLUS, as well as several links to support services and links to purchase the actual software.

## Mapping & GIS (Geographic Information Systems)

- **Wayne State University Center for Urban Studies (CUS)** [http://www.cus.wayne.edu/capabilities/gis\\_mapping.asp](http://www.cus.wayne.edu/capabilities/gis_mapping.asp) This page describes mapping and GIS services that are offered by the CUS.
- **Harvard College Library** <http://hcl.harvard.edu/libraries/maps/gis/tutorials.cfm> This page contains three introductory video tutorials, as well as ArcGIS exercises.
- **ArcGIS** <http://resources.arcgis.com/en/tutorials/> This link provides online tutorials for ArcGIS mapping software.
- **University of Oregon Libraries** [http://library.uoregon.edu/map/map\\_section/listserves\\_tutorials/map\\_Tutorials.html](http://library.uoregon.edu/map/map_section/listserves_tutorials/map_Tutorials.html) This page contains a list of support resources and tutorials for GIS software, including ESRI, ArcGIS, ArcView, GRASS, IDRISI, and MapInfo.
- **Google Fusion Tables** <https://support.google.com/fusiontables/answer/2527132?hl=en&topic=2573107&ctx=topic> This page contains a step-by-step tutorial and downloadable sample data set to guide users through Fusion Tables, a free web application for mapping.

- **GeoCommunity** <http://spatialnews.geocomm.com/education/tutorials/>  
This online community provides resources, tutorials, and news pertaining to a variety of mapping and GIS software.

## Statistical Tests

### ANOVA

- **UCLA IDRE (Institute for Digital Research and Education)**  
<http://www.ats.ucla.edu/stat/stata/topics/anova.htm> This webpage includes a list of resources as well as syntax for running ANOVA.
- **Monash University**  
<http://www.csse.monash.edu.au/~smarkham/resources/anova.htm> This webpage walks through various ANOVA functions step by step. It also includes a list of software used to run ANOVA.
- **Statistics Solutions** <https://www.statisticssolutions.com/academic-solutions/resources/directory-of-statistical-analyses/anova/> This webpage includes detailed overview of ANOVA including background and purpose of this statistical test.
- **StatSoft** <http://www.statsoft.com/Textbook/ANOVA-MANOVA> This website includes a detailed list of links for running ANOVA, from basic ideas to methods of analysis.

### MANOVA

- **UCLA IDRE (Institute for Digital Research and Education)**  
<http://www.ats.ucla.edu/stat/stata/topics/anova.htm> This webpage has links for running a one way MANOVA as well as links to detailed syntax.
- **StatSoft** <http://www.statsoft.com/Textbook/ANOVA-MANOVA> This webpage has a number of links including the background for running MANOVA as well as the analysis for this statistical test.
- **Real Statistics Using Excel** <http://www.real-statistics.com/multivariate-statistics/multivariate-analysis-of-variance-manova/real-statistics-manova-features/> This webpage includes the step by step process for running MANOVA, including screen grabs to help the user to follow along easily.

### ANCOVA

- **Statistics Hell** <http://www.statisticshell.com/docs/ancova.pdf> This PDF provides a detailed overview of ANCOVA, including assumptions and how to test them in your data, how to conduct the ANCOVA in SPSS, how to interpret the output, how to run post hoc analyses, and a step-by-step example of ANCOVA.

- **MedCalc** <http://www.medcalc.org/manual/analysis-of-covariance.php> This page gives step-by-step instructions and screenshots for running ANCOVA in SPSS.
- **University of Colorado Denver** <http://www.ucdenver.edu/academics/colleges/nursing/Documents/PDF/ANCOVAHowTo.pdf> This link offers instructions and screenshots for ANCOVA in SPSS, and explains how to interpret outputs and results.
- **Real Statistics** <http://www.real-statistics.com/analysis-of-covariance-ancova/> This page features a description of ANCOVA and different methods for performing an analysis in Excel.

### Chi Square

- **Chi Square Analysis on SPSS** <http://www.youtube.com/watch?v=Ahs8jS5mJKk> This YouTube video provides a visual tutorial for performing a Chi Square test in SPSS.
- **Khan Academy** <https://www.khanacademy.org/math/probability/statistics-inferential/chi-square/v/chi-square-distribution-introduction> This page provides three video tutorials on Chi Square tests.
- **Real Statistics** <http://www.real-statistics.com/chi-square-and-f-distributions/independence-testing/> This page displays instructions for performing a Chi Square analysis using Excel.

### Post-hoc

- **Portland State University** [www.upa.pdx.edu/IOA/.../da1/ho\\_posthoc.doc](http://www.upa.pdx.edu/IOA/.../da1/ho_posthoc.doc) This document provides descriptions for various post-hoc analyses.
- **Practical Statistics for Educators** [http://practicalstats.labanca.net/index.php?title=Selecting\\_a\\_Post\\_Hoc\\_test](http://practicalstats.labanca.net/index.php?title=Selecting_a_Post_Hoc_test) This page contains descriptions to help you select an appropriate post hoc test.
- **Duke University BOSS** [https://sakai.duke.edu/access/content/group/25e08a3d-9fc4-41b0-a7e9-815732c1c4ba/New%20folder/Stat%20Topic%20Files/Post%20Hoc%20Tests/post\\_hoc.html](https://sakai.duke.edu/access/content/group/25e08a3d-9fc4-41b0-a7e9-815732c1c4ba/New%20folder/Stat%20Topic%20Files/Post%20Hoc%20Tests/post_hoc.html) This site contains descriptions of various post hoc comparisons, as well as examples and a MATLAB tutorial.

### Nonparametric Tests

- **StatSoft** <https://www.statsoft.com/Textbook/Nonparametric-Statistics> This page provides a guide for selecting a nonparametric test.
- **University of Glasgow Statistics Glossary** <http://www.stats.gla.ac.uk/steps/glossary/nonparametric.html> This page gives a list and description of statistical tests for data that do not fit the assumptions of parametric statistical tests.

- **University of Dayton**  
<http://academic.udayton.edu/gregelvers/psy216/spss/ordinaldata.htm> This site provides instructions, including screenshots, for performing three nonparametric tests in SPSS: the Mann Whitney U, the Sign Test, and the Wilcoxon test.
- **IBM SPSS Help**  
[http://pic.dhe.ibm.com/infocenter/spsstat/v20r0m0/index.jsp?topic=%2Fcom.ibm.spss.statistics.help%2Fidh\\_idd\\_npar\\_related\\_objective.htm](http://pic.dhe.ibm.com/infocenter/spsstat/v20r0m0/index.jsp?topic=%2Fcom.ibm.spss.statistics.help%2Fidh_idd_npar_related_objective.htm) This page provides instructions for performing one-sample, independent samples, and related samples nonparametric tests in SPSS.
- **Real Statistics** <http://www.real-statistics.com/non-parametric-tests/> This page offers instructions for running a variety of nonparametric tests in Excel.

### Different types of Regression:

- **UCLA IDRE (Institute for Digital Research and Education)**  
<http://www.ats.ucla.edu/stat/sas/topics/logistic.htm> This webpage has a number of links to resources for different regression functions.
- **The Analysis Institute** <http://theanalysisinstitute.com/logistic-regression-workshop/> This online workshop offers a variety of modules for various forms of regression.

### Binary Logistic Regression

- **Hosmer, D. W., & Lemeshow, S. (2000).** Applied logistic regression (2<sup>nd</sup> ed.). New York: John Wiley & Sons.
- Menard, S. (2010). Logistic regression: From introductory to advanced concepts and applications. Newbury Park, CA: Sage Publications.
- **Minitab Blog** <http://blog.minitab.com/blog/real-world-quality-improvement/using-binary-logistic-regression-to-investigate-high-employee-turnover> This webpage shows how binary logistic regression is used to investigate high employee turnover. The step-by-step example uses screen grabs to make it easy for the viewer to follow along.

### Multinomial Logistic Regression

- **Stata Data Examples (UCLA IDRE)**  
<http://www.ats.ucla.edu/stat/stata/dae/mlogit.htm> This webpage walks the user through the steps of multinomial logistic regression, providing examples and reference links.
- **Department of Statistics (Penn State)**  
<http://sites.stat.psu.edu/~jls/stat544/lectures/lec19.pdf> This



document is a detailed, step-by-step analysis of multinomial logistic regression.

- **Princeton University**  
<http://data.princeton.edu/wws509/notes/c6s2.html> This website provides a detailed list of the various models that use multinomial logistic regression.

### **Linear Regression**

- **Fox, J. (2008).** Applied regression analysis and generalized linear models (2<sup>nd</sup> ed.). Thousand Oaks, CA: Sage.
- **Department of Statistics (Yale University)**  
<http://www.stat.yale.edu/Courses/1997-98/101/linreg.htm> This webpage walks through a basic overview of linear regression. Taken from a statistics course at Princeton.
- **Online Statistics Education**  
<http://onlinestatbook.com/lms/regression/intro.html> This website provides a very detailed look at linear regression.
- **The Analysis Factor**  
<http://www.theanalysisfactor.com/resources/by-topic/linear-regression/> This webpage offers a number of resources for linear regression including pertinent articles and frequently asked questions.

### **Multiple Regression**

- **Cohen, J. Cohen, P. West, S. G., & Aiken, L. S. (2003).** Applied multiple regression/correlation analysis for the behavioral sciences (3<sup>rd</sup> ed.). Mahwah, NJ: Lawrence Erlbaum.
- **Jaccard, J., Turrisi, R., & Wan, C. K. (2003).** Interaction effects in multiple regression (2<sup>nd</sup> ed.). Newbury Park, CA: Sage.
- **StatSoft** <http://www.statsoft.com/Textbook/Multiple-Regression> This website includes a detailed introduction to multiple regression, it's purpose, and it's limitations and assumptions.
- **Handbook of Biological Statistics**  
<http://udel.edu/~mcdonald/statmultreg.html> This webpage provides a thorough overview of multiple regression with detailed examples for the user.

### **Handling Missing Data**

- **Applied Missing Data Analysis** <http://www.appliedmissingdata.com/> This website offers steps for handling missing data in SPSS and MPLUS.
- Enders, C. K. (2010). Applied missing data analysis. Guilford Press.

- **Guidelines for Handling Missing Data in Social Science Research**  
<http://missingdata.lshtm.ac.uk/downloads/guidelines.pdf> This handout provides guidelines for handling missing data.
- **Treatment of Missing Data (University of Vermont)**  
[http://www.uvm.edu/~dhowell/StatPages/More\\_Stuff/Missing\\_Data/Missing.html](http://www.uvm.edu/~dhowell/StatPages/More_Stuff/Missing_Data/Missing.html) This webpage provides a very thorough overview of how to handle missing data.
- **The Analysis Factor** <http://www.theanalysisfactor.com/missing-data/> This webpage defines missing data and provides resources for different ways of managing it. It also provides a list of helpful books and other online sources.
- **Resource Use Logs (RUL)**  
<http://www.ncbi.nlm.nih.gov/pubmed/23337231> This webpage, while it focuses on the use of logs in handling missing data, provides a very detailed explanation that might be utilized in other instances.
- **Replacing Missing Data Using Multiple Imputation**  
<http://www.youtube.com/watch?v=ytQedMywOjQ> This is a link to a YouTube video that shows how to use SPSS to handle missing data. It contains detailed screen shots at every step, making it easy for the user to follow along.
- **Journal of Business and Psychology**  
<http://link.springer.com/article/10.1007%2F978-1-4939-9825-9#page-1> This is a link to a journal article that discusses the impact of four different techniques for addressing missing data.
- **Data ONE** <http://www.dataone.org/best-practices/identify-missing-values-and-define-missing-value-codes> This webpage looks at the different missing values and missing value codes and the ways that they can be addressed.

### Structural Equation Models

- **Structural Equation Models (Fox, 2002)** <http://cran.r-project.org/doc/contrib/Fox-Companion/appendix-sems.pdf> This document provides a detailed introduction, as well as examples of structural equation modeling.
- **Structural Equation Modeling (STATA)**  
<http://www.stata.com/stata12/structural-equation-modeling/> This website provides a very detailed overview and discussion about using structural equation models. It includes screen grabs, making it easier for users to follow along.
- **Smallwaters Psychometric Folder**  
<http://www.smallwaters.com/Courses%20and%20Presentations/Structural%20Equation%20Modeling/Introduction%20to%20SEM%20with%20Proc%20Calis/Introduction%20to%20SEM%20%28Webinar%20Slides%29.pdf> These course notes include an overview to structural equation modeling, as well as very detailed examples to help the user understand how these models can be used.

## Multilevel/hierarchical modeling

- **Multilevel Modeling (Columbia University)** <http://www.stat.columbia.edu/~gelman/research/published/multi2.pdf>  
This document gives a very detailed introduction to this form of modeling, as well as detailed examples to assist in analysis.
- **Oxford Journals** <http://ije.oxfordjournals.org/content/29/1/158.long> This article discusses the principles of multilevel modeling.

## Factor analysis

- **Factor Analysis (StatSoft)** <https://www.statsoft.com/Textbook/Principal-Components-Factor-Analysis> This webpage gives a detailed overview of factor analysis, including its general purpose and key components.
- **Statistics in Psychosocial Research (Johns Hopkins)** <http://ocw.jhsph.edu/courses/statisticspsychosocialresearch/pdfs/lecture8.pdf> These detailed lecture notes provide the reader with a very clear introduction to factor analysis.
- **Factor Analysis (Princeton)** <http://dss.princeton.edu/training/Factor.pdf> This document provides another introduction to factor analysis, along with detailed examples and a number of links to books and other resources that focus on factor analysis.