

Category	Topics (difficulty)	Resources
Predictive modeling / statistical learning	Classification Discriminant Analysis Logistic regression Resampling methods Ridge regression Regression splines Decision trees / random forests Support vector machines Neural networking Unsupervised methods (PCA, clustering)	<ul style="list-style-type: none"> <li>- An Introduction to Statistical Learning (James et al) - ISLR Fourth Printing.pdf</li> <li>- Practical Data Science with R (Zumel &amp; Mount) - Practical_Data_Scienc.pdf</li> <li>- Applied Predictive Modeling (Kuhn &amp; Johnson) - Kuhn_Johnson_Applied_Predictive_Modeling.pdf</li> <li>- R and Data Mining: Examples &amp; Case Studies (Zhao) - Zhao_R_and_data_mining.pdf</li> </ul>
Statistical computing	Data processing (tidying, cleaning, munging) R packages (dplyr, ggvis, shiny, knitr) Grammar of Graphics	<ul style="list-style-type: none"> <li>- ggplot2 (Wickham) - ggplot2.PDF</li> <li>- The R Book (Crawley) - The R Book.pdf</li> </ul>
Multivariate Statistical Methods	Principal Components Analysis Exploratory factor analysis MANOVA, Hotelling's $T^2$ Cluster analysis Discriminant analysis Multidimensional scaling Canonical correlation	<ul style="list-style-type: none"> <li>- Practical Data Science with R (Zumel &amp; Mount) - Practical_Data_Scienc.pdf</li> <li>- Analyzing Multivariate Data (Lattin) - physical copy</li> </ul>
Structural Equation Modeling	Path analysis Measurement models	
Bayesian methods		<ul style="list-style-type: none"> <li>- Doing Bayesian Data Analysis (Kruschke) - physical copy</li> <li>- Bayesian Cognitive Modeling (Lee &amp; Wagenmakers) - LeeWagenmakers2013_Free.pdf</li> <li>- Bayesian data analysis: Overview (Kruschke) - Kruschke2010WIRES.pdf</li> <li>- Bayesian Essentials with R (Marin &amp; Robert)- Bayesian Essentials with R.pdf</li> </ul>
Experimental design	Split plot, Latin square designs	<ul style="list-style-type: none"> <li>- Applied Linear Statistical Models (Kutner et al)</li> <li>- Applied_Linear_Statistical_Models_-_M.H._Kutner,_C.J._Nachtsheim,_J._Neter_&amp;_W._Li.pdf</li> <li>- A First Course in Design and Analysis of Experiments (Oehlert) - fcdae.pdf</li> <li>- A Companion to Experimental Design (Vikneswaran) - Vikneswaran-ED_companion.pdf</li> </ul>
Advanced regression topics	Model selection Model validation Matrix algebra formulation Hierarchical modeling Dealing with measurement error	<ul style="list-style-type: none"> <li>- Applied Linear Statistical Models (Kutner et al) - Applied_Linear_Statistical_Models_-_M.H._Kutner,_C.J._Nachtsheim,_J._Neter_&amp;_W._Li.pdf</li> </ul>
Nonparametric methods		
Teaching resources	GAISE, CAOS, ARTIST, SATS-36, Cobb report, JSE, CHANCE, <a href="http://CAUSEweb.org">CAUSEweb.org</a> ,	
Time series	Survival analysis	<ul style="list-style-type: none"> <li>- Cox Proportional-Hazards Regression for Survival Data (Fox) - appendix-cox-regression.pdf</li> <li>- Time Series Analysis with R (McLeod &amp; Mahdi) - tsar.pdf</li> </ul>