

Course Information Sheet -- APSTA-GE.2003

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Office: 206 Kimball Hall, 246 Greene Street
Office Hours: Tuesdays, 10 am to noon and by appointment

TA: TBD

Prerequisites:

Meeting Times/Location: TBD

Lab Section Meeting Times/Rooms: Attendance in lab is strongly recommended and encouraged. The lab provides additional Stata demonstrations of what is discussed in class, and hands-on guidance for completing homework assignments.

Course Goals: This course extends the material covered in APSTA-GE.2001-2 by examining in greater depth multiple regression/correlation as a general and flexible system for analyzing data in the behavioral, social, and health sciences. In addition to covering more advanced topics related to traditional multiple regression/correlation, the course examines Path Analysis, ANOVA, and ANCOVA as special cases of the general linear model. Logistic regression also is covered. Logistic regression does not fall under the general linear model heading as it applies when the dependent variable is categorical, not continuous. The primary software package to be used in the course is Stata to give students hands-on experience with topics covered. In addition, for some topics SPSS will be used. The course aims to provide graduate students with foundational skills and knowledge for analyzing quantitative data based on a regression approach.

Course Orientation: A conceptually-oriented approach is used. The course is not appropriate for students seeking to learn the mathematical theory underlying these techniques.

Course Materials:

Website: Handouts, lecture notes, readings, homework assignments, and general information will be posted under *Resources* on our NYU Classes course website. Lecture notes will be posted for each lecture. You are advised to download these notes prior to lecture each week and bring a copy of them to class, either as hard or soft copies to facilitate note taking. Along with lecture notes, all data sets used in a lecture also will be posted each week under *Resources* so that you may review and replicate on your own whatever analyses have been carried out in class.

Texts: The course lecture notes serve as the primary text for the course; the following textbooks, available at the NYU Bookstore, are useful as an additional source of

information and future reference:

Cohen, P., Cohen, J., West, S.G., & Aiken, L.S. *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*, 3rd edition, Lawrence Erlbaum Associates. [C]

Warner, R. M. *Applied Statistics: From Bivariate Through Multivariate Techniques*, 2nd edition, Sage Publications, Inc. [W]

Computer Labs (Virtual and Actual):

NYU offers a *Virtual Computer Lab* (VCL) to all NYU degree-seeking students with active e-mail accounts. Students who qualify will see the VCL channel on the **Academics** tab in NYUHome. To access the VCL: Log into NYUHome (home.nyu.edu); Select the **Academics** tab, then scroll down until you see the "Virtual Computer Lab" channel; Click **VCL Log In**; Once on the VCL page, click **Log Into the VCL Now!**; Enter your **NetID** and **password**; Click **Log In**. **Note:** The first time you log into the VCL, you will be prompted to install the Citrix ICA plug-in.

Stata is available through the VCL, and also through the *Actual Computer Labs*.

Stata is available at the following Actual Computer Labs:

Kimball Hall, 3E (Windows) [This lab does not require swiping your ID]
Fourth Street Academic Technology Center (Mac and Windows)
Washington Place Technology Center (Mac and Windows)
Third Avenue (Mac and Windows)
Kimmel Center (Mac and Windows)

For a current list of software available by location, please see the [ITS Software Applications by Location](#) page.

Course Requirements & Grading:

Homework: Practicing what has been covered in class is essential to learning statistics. HW will be assigned, collected, and graded each week. All students are responsible for completing all homework assignments on time and raising related questions in class.

Grading:

10% Class attendance and participation

90% Weekly computer-based homework sets (approx. ten in all)

Syllabus:

<i>INTERMEDIATE QUANTITATIVE METHODS -- APSTA-GE.2003</i>			
<i>Month</i>	<i>Day</i>	<i>Topic</i>	<i>Recommended Reading (C & W)</i>
September		Statistical Procedures: A Conceptual Map; Univariate & Bivariate Statistics -- A Review	C -- pp. 2 – 36; W – ch. 1 - 9
		Statistical Control: The Two-Predictor Case	C -- pp. 37-62; W -- ch. 10 & 11
		The <i>k</i> Predictor Case: Model Building Strategies: Simultaneous, Hierarchical, and Stepwise Approaches; Statistical Inference in Multiple Regression	C -- pp. 64-99 W – ch. 14
		Critiquing an article that uses MR	TBD
October		Nonlinear Transformations and Regression Diagnostics -- Checking and Addressing Underlying Assumptions	C -- pp. 101-150
		FALL BREAK--NO CLASS	
		Interactions -- The Case of a Dichotomous and Quantitative Variable; the Case of Two Quantitative Variables	C – pp. 255-300 W – ch. 15
		<i>Post Hoc</i> Probing of Interactions	C – pp. 255-300
November		Mediation; Intro to Path Analysis	Baron & Kenny, 1986; Preacher & Hayes, 2004 (posted on our website) W -- ch. 16
		From Single Predictors to Sets of Predictors: Qualitative Scales using Dummy Coding (Indicator Variables), Quantitative Scales, Analytic Strategies, Proportion of VAF, Tests of Inference	C – pp. 301-342 W – ch..12
		Multiple Regression as a General Linear Model -- ANOVA as a Special Case of GLM	C – pp. 343-389 W – ch. 13
		Multiple Regression as a General Linear Model -- ANCOVA as a Special Case of GLM; Lord's Paradox	C – pp. 343-389 W – ch. 17
December		When the DV is logged; Power Polynomials	C – pp. 193-214
		Logistic Regression -- When the DV is Dichotomous (Generalized Linear Equations)	C -- pp. 479-519 W – ch. 23
		Logistic Regression, Cont'd; Characterizing Differences among Methods Covered; Wrapping Up.	C – pp. 479-519 W – ch. 23