
Psyc 8103: Basic Quantitative Analyses for Behavioral Sciences

This syllabus contains the policies and expectations established for this course. Please read the entire syllabus carefully before continuing in this course. These policies and expectations are intended to create a productive learning atmosphere for all students. Unless you are prepared to abide by these policies and expectations, you risk losing the opportunity to participate further in the course.

Instructors

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Course Overview

This course is a graduate level introduction to the general data-analytic system of multiple regression and correlation (MRC). Multiple Regression and Correlation refers to a family of quantitative techniques (including the antiquated ANOVA version of MRC) for examining the magnitude of associations between one or more predictor variables and one or more criterion variables; or predicting outcomes given knowledge of a set of predictor variables. MRC (as a family of techniques) is an extremely versatile way to analyze behavioral science data, as there are various MRC models that allow for most types of variables to be analyzed (e.g., continuous or categorical, naturally occurring vs. manipulated, repeated) or virtually any kind of expected relationship (e.g., linear, non-linear, interactive effects). Though there are a wide variety of specific MRC models, the aim of this class is to ensure an understanding of the conceptual fundamentals of MRC as a data analytic system, how specific instantiations of MRC models (such as ANOVA, path analysis, polynomial regression, moderated regression, logistic regression, etc.) fit within the system, and to understand “best practices” for MRC based analyses.

This course is designed for doctoral level students seeking instruction in “best practices” of MRC based data analyses. The course is designed for students with pre-existing basic statistical and methodological literacy; students deficient in those areas are advised to seek remedial help before taking this course. Students are expected to have a general familiarity with the SPSS software package. If you do not feel that learning data analytic skills is useful for your career goals, I encourage you to consider withdrawing.

There are four primary pedagogical objectives of this class:

1. Mastery of the mathematical basis and conceptual meaning of the MRC statistical coefficients
2. Competency to use MRC techniques strategically to answer specific research questions
3. Competency to implement these procedures with common statistical software (i.e., SPSS syntax language)
4. Competency in interpreting the results of MRC analyses.

In other words, the overall objective is to gain the ability to design an effective, accurate, and appropriate data analytic strategy given a specific research question.

Course Format

The course will involve lecture, hands-on examples, and a number of formal assignments that require the analysis of data sets and writing of brief reports. Other activities deemed appropriate by the instructor may be included. You will be required to use the SPSS syntax language in this course. Students will also develop a study, obtain secondary data, and analyze the data. These will be written up as manuscripts (the “term paper”) and students will give a conference style presentation of their study.

Course Materials

Required text book: Cohen, Cohen, West, & Aiken (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd edition). Mahwah, NJ: Erlbaum.

Required Readings: Additional readings will be posted on Moodle. All readings are to be completed prior to class. We will not read the articles in class; the articles augment the textbook and/or provide you with examples of specific types of analyses. Students are expected to integrate information across sources at a level consistent with national standards for doctoral level courses.

Canvas: This course will use the Canvas system to support our teaching and learning goals. All announcements, handouts, additional reading materials and assignments will be posted on Canvas. Students are responsible for downloading materials posted and bringing those materials to class; paper copies will not be provided in class.

If you need technical assistance for any reason, submit an online request via HelpDesk Online at <http://helpdesk.uncc.edu> or contact the Student Computing Help Center at (704) 687-6400.

Tentative Course Outline

See Canvas for the list of topics covered by week and the associated reading material and assignments.

Student Evaluation

Exams: There will be two exams. Each exam may consist of two parts; one part in-class (essay) and one part take-home (data analyses and write-up). Students are obligated by the UNCC academic integrity code to complete exams without help from others. Please contact your instructors immediately if you know of a schedule conflict; we can happily accommodate requests for alternate arrangements **in advance** of the exam (post hoc requests for making up a missed exam are not accepted except in highly exceptional cases). Take-home portions submitted after the deadline will not be accepted.

Assignments: Several assignments will be given out during the semester. Assignments typically consist of a data set and some information about a hypothetical study. Most will require you to use SPSS syntax for conducting data analyses. The homework assignments are designed to give you a semi-structured opportunity to work with this material outside of class. **The assignments require you to apply research methodology skills to formulate an analytic plan, execute it, and interpret it. Often the assignments will require you to determine what analytic strategy is most appropriate.**

Note, this is not a math class! The purpose of the assignments is to enhance your research skills; not simply to transcribe SPSS output into a Word document. The assignments are meant to require “think through” in terms of what analysis is appropriate, and how to interpret the results given all the methodical considerations that we covered in 8102 (recall, this is year long sequence). Students may work on assignments together (collaborate on the “thinking”), but each student is obligated to write up the assignment independently.

Attendance: I do not grade attendance or participation. This is your career; I expect you will treat it as such. If you do not wish to or are unable to attend class for any reason, that is your prerogative. However, please know that we do not offer make up sessions for missed classes. *If you anticipate missing a class for a career related reason (e.g., conference), let us know in advance and we'll be more than happy to make arrangement for you.*

Final grades: Final grades are based on the proportion of total points earned from all evaluations using the following scale: A \geq 90%; B \geq 80%; C \geq 70%; U < 70%.

Additional Course Policies

Personal Conduct

I will conduct this class with emphasis on intellectual honesty, logical analysis, and empirical argumentation. I encourage your active participation in class. The logical analysis and empirical critique of ideas is encouraged and welcomed. However, I will exercise my responsibility to manage the discussions so that the course can proceed in an orderly fashion. You should expect that if your conduct during class seriously disrupts the atmosphere of learning and intellectual honesty, or demonstrates lack of respect for either of your instructors or your peers, you may be required to leave the class.

Revisions to Syllabus

The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. Notice of such changes will be by announcement in class or by email and will be posted on the Moodle course page.

Instructor's absence or tardiness

If the instructors are late in arriving to class, you must wait a full 20 minutes after the start of class before you may leave without being counted absent, or you must follow any written instructions provided.

Disability accommodations

UNC Charlotte is committed to access to education. If you have a disability and need academic accommodations, please provide a letter of accommodation from Disability Services early in the semester. For more information on accommodations, contact the Office of Disability Services at 704-687-0040 or visit their office at Fretwell 230.

Academic integrity violations

All students are required to read and abide by the Code of Student Academic Integrity. Violations of the Code of Student Academic Integrity, including plagiarism, will result in disciplinary action as provided in the Code. Definitions and examples of plagiarism are set forth in the Code. The Code is available online at: <http://www.legal.uncc.edu/policies/ps-105.html>

As a condition of taking this course, all students are required to complete the exams independently, without help from others and without reference to any form of information (e.g., books, notes, on-line sources, etc.). The somewhat outdated term is "closed-book exam". Violations of the policy will result in disciplinary action as provided in the Code of Student Academic Integrity. Answer keys from prior semesters are likely floating around the department. It is a policy of this course that you will not seek out, gain access to or use answer keys from prior semesters.

As a condition of taking this course, all papers and assignments may be subject to submission for textual similarity review to Turnitin.com or other similar services for the detection of plagiarism. Any papers submitted may be included as source documents in these reference databases solely for the purpose of detecting plagiarism of such papers. No student papers will be submitted to these sources without a student's written consent and permission. If a student does not provide such written consent and permission, the instructor may (i) require an additional essay to be written in a proctored setting, and/or (ii) require a copy of each reference source to be photocopied and submitted with the paper.

Digital Devices in Class

Students are permitted to use digital devices during class ONLY for note-taking and other class-related work. If the use of such devices becomes disruptive, or becomes clear you are using for non-class related work, you will forfeit your right to remain in the classroom for that period.

Sexual Harassment

All students are required to abide by the UNC Charlotte Sexual Harassment Policy and the policy on Responsible Use of University Computing and Electronic Communication Resources. Sexual harassment, as defined in the UNC Charlotte Sexual Harassment Policy, is prohibited, even when carried out through computers or other electronic communications systems, including course-based chat rooms or message boards.