UNIVERSITY OF FLORIDA

COLLEGE OF NURSING

COURSE SYLLABUS

SUMMER 2015

COURSE NUMBER NGR 6845 – Section 7980

COURSE TITLE Applied Statistical Analysis II

CREDITS 3

PLACEMENT PhD Program

PREREQUISITES NGR 6840: Applied Statistical Analysis I

# FACULTY Raffaele Vacca, PhD

# [r.vacca@ufl.edu](mailto:r.vacca@ufl.edu) HPNP 4218 Phone: (352) 273-6010

# Office hours: By appointment

COURSE DESCRIPTION The purpose of this course is to provide the student with an opportunity to analyze and apply advanced multivariate statistical procedures. Emphasis is on the utilization and interpretation of advanced multivariate procedures. An additional emphasis will be on critiquing data analysis in current research articles. The focus is on understanding and applying advanced multivariate statistical procedures.

COURSE OBJECTIVES Upon completion of this course, the student will be able to:

1. Apply advanced multivariate procedures for statistical analysis, data reduction, and modeling to selected research questions.

2. Develop an advanced appropriate statistical design and analysis plan for selected questions.

3. Utilize selected computer programs (SPSS and at least one other) to analyze data.

4. Critique data analysis and interpretation of results in current research articles.

COURSE SCHEDULE

E-Learning in Canvas is the course management system that you will use for this course. E-Learning in Canvas is accessed by using your Gatorlink account name and password at <https://lss.at.ufl.edu/>. There are several tutorials and student help links on the E-Learning login site. If you have technical questions call the UF Computer Help Desk at 352-392-HELP or send email to [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).

It is important that you regularly check your Gatorlink account email for College and University wide information and the course E-Learning site for announcements and notifications.

Course websites are generally made available on the Friday before the first day of classes.

TOPICAL OUTLINE

1. Logistic regression

2. Path analysis with causal modeling

3. Factor analysis

4. Repeated measures

5. Multi-dependent variable analysis (MANOVA)

6. Data reduction (reliability analysis; principle components analysis/factor analysis)

TEACHING METHODS

Lectures, audiovisual materials, written materials, computer exercises, and presentation of case studies.

LEARNING ACTIVITIES

Readings, participation in discussion, case study analysis, study questions, data analysis with SPSS for statistical techniques, critique of data analysis and interpretation of results in articles.

EVALUATION METHODS/COURSE GRADE CALCULATION

* Assignments: 60% (10% x 6)
* Research critique and presentation: 20%
* Final Exam: 20%

Assignments will be returned within 2 weeks.

MAKE UP POLICY

If lateness is unavoidable, notify the professor **prior to** the scheduled due date/time. **A grade penalty of 1 points per day will be assigned for late assignments unless prior approval is obtained**. **No work will be accepted 2 days after the due date.** Tests and quizzes will not be accepted late, and make-up exams/quizzes are not available.

GRADING SCALE/QUALITY POINTS

A 95-100 (4.0) C 74-79\* (2.0)

A- 93-94 (3.67) C- 72-73 (1.67)

B+ 91- 92 (3.33) D+ 70-71 (1.33)

B 84-90 (3.0) D 64-69 (1.0)

B- 82-83 (2.67) D- 62-63 (0.67)

C+ 80-81 (2.33) E 61 or below (0.0)

\* 74 is the minimal passing grade

For more information on grades and grading policies, please refer to University’s grading policies: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

REQUIRED TEXTBOOKS

\* Meyers, L., Gamst, G., & Guarino, A. J. (2012). Applied multivariate research: design and interpretation (2nd ed.). Thousand Oaks, CA: Sage Publication.

\* Tabachnick, B., & Fidell, L. (2012). Using multivariate statistics (6th ed.). Upper Saddle River, NJ: Pearson.

\* Valente, T. W. (2010). Social Networks and Health: Models, Methods, and Applications (1st ed.). New York, NY: Oxford University Press.

Software

\* IBM SPSS Computer Program. (Version 22) [Computer Software]. Armonk, NY: IBM.

\* The R programming language for statistical computing (Version 3.20). [Computer Software] <http://www.r-project.org>

\* Ucinet 6 for Windows. [Computer Software] <https://sites.google.com/site/ucinetsoftware/home>

RECOMMENDED TEXTBOOK

\* Dalgaard, P. (2002). Introductory statistics with R. New York: Springer.

\* Everitt, B., & Hothorn, T. (2011). An introduction to applied multivariate analysis with R. New York: Springer.

\* Field, A. (2013). Discovering statistics using SPSS (4th ed.). Thousand Oaks, CA: Sage Publications.

WEEKLY CLASS SCHEDULE

|  |  |  |
| --- | --- | --- |
| DATE | TOPIC/EVALUATION | ASSIGNMENTS/READINGS |
| 5/12 | Multivariate data, analysis and visualization. Introduction to R. | Everitt, Ch. 1, 2  Tabachnick, Ch. 1 |
| 5/19 | Logistic Regression: Binary LR, Ordinal LR. Objects and basic operations in R. | Tabachnick, Ch. 10  OR  Meyers, Ch. 10  **Assignment #1: LR** |
| 5/26 | Multivariate analysis of variance (MANOVA): One-way, Two-way. Importing and managing data in R. | Tabachnick, Ch. 7  OR  Meyers, Ch. 5 |
| 6/2 | Repeated Measures. Descriptive statistics in R. | Everitt, Ch. 8  Field, Ch. 14  **Assignment #2: MANOVA, RM-ANOVA** |
| 6/9 | Principal Component Analysis. Multidimensional Scaling. Exploratory Factor analysis. | Meyers, Ch. 19  Tabachnick, Ch. 13 OR  Meyers, Ch. 12. |
| 6/16 | Confirmatory Factor analysis; Structural Equation Modeling. | Tabachnick, Ch. 14  Meyers, Ch. 16, 19  **Assignment #3: R basics** |
| 6/23 | *Summer Break* |  |
| 6/30 | Path analysis: Mediation and Moderation. | Meyers, Ch. 17, 18  **Assignment #4: Path Analysis** |
| 7/7 | Social Network Analysis: Research designs and types of data. Introduction to Ucinet. | Valente, Ch. 1, 3 |
| 7/14 | Social Network Analysis: Centrality and centralization. | Valente, Ch. 5  **Assignment #5: Network centrality** |
| 7/21 | Social Network Analysis: Subgroups and communities. | Valente, Ch. 6  **Assignment #6: Network subgroups** |
| 7/28 | Student Presentations | **Research critique and presentation** |
| 8/4 | Final Exam | **Final Exam** |

University and College of Nursing Policies:

Please see the College of Nursing website for a full explanation of each of the following policies - <http://nursing.ufl.edu/students/student-policies-and-handbooks/course-policies/>.

Attendance

Academic Honesty

UF Grading Policy

Accommodations due to Disability

Religious Holidays

Counseling and Mental Health Services

Student Handbook

Faculty Evaluations

Student Use of Social Media