UNIVERSITY OF FLORIDA

COLLEGE OF NURSING

COURSE SYLLABUS

SPRING/2017

COURSE NUMBER NGR 6845

COURSE TITLE Applied Statistical Analysis II

CREDITS 3

# PLACEMENT PhD Program

PREREQUISITE NGR 6840 Applied Statistical Analysis I

# FACULTY Michael Weaver RN PhD FAAN

#  michael.weaver@ufl.edu Phone: (352) 273-7491

# HPNP 2201A; 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 (SAS and MPLUS) 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://elearning.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.

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, readings, audiovisual materials, class discussion, and computer exercises.

LEARNING ACTIVITIES

1. Data analysis with statistical packages for statistical techniques
2. Discussion of interpretation of findings from analysis
3. Discussion of research articles and study ideas

EVALUATION METHODS/COURSE GRADE CALCULATION

* Exercises: (each module is 5%) 35%
* 3 Exams (15%, 25%, 20%) 60%
* Bare Bones Research Proposal: 5%

MAKE UP POLICY

If lateness is unavoidable, notify the professor **prior to** the scheduled due date/time. **A grade penalty of 10 percentage 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.** Exams will not be accepted late, and make-up exams are not available.

GRADING SCALE/GRADE 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: http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades

PROFESSIONAL BEHAVIOR

The College of Nursing expects all Nursing students to be professional in their interactions with patients, colleagues, faculty, and staff and to exhibit caring and compassionate attitudes. These and other qualities will be evaluated during patient contacts and in other relevant settings by both faculty and peers. Behavior of a Nursing student reflects on the student's individual’s ability to become a competent professional Nurse. Attitudes or behaviors inconsistent with compassionate care; refusal by, or inability of, the student to participate constructively in learning or patient care; derogatory attitudes or inappropriate behaviors directed at patients, peers, faculty or staff; misuse of written or electronic patient records (e.g., accession of patient information without valid reason); substance abuse; failure to disclose pertinent information on a criminal background check; or other unprofessional conduct can be grounds for disciplinary measures including dismissal.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT

Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at <http://www.dso.ufl.edu/students.php>. Students are required to provide their own privacy screen for all examination’s administered to student laptops. No wireless keyboards or wireless mouse/tracking device will be permitted during examinations.

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

UF Grading Policy

Accommodations due to Disability

Religious Holidays

Counseling and Mental Health Services

Student Handbook

Faculty Evaluations

Student Use of Social Media

REQUIRED TEXTBOOKS

\* Pituch K & Stevens J (2016). Applied multivariate statistics for the social sciences. Analyses with SAS and IBM’s SPSS (6th ed.). New York: Routledge.

Required Software

\* The course will use SAS and MPLUS software packages; however, students are welcome to use other packages if they prefer. While questions about SAS and MPLUS (and some SPSS) can generally be answered off the top of my head, I cannot guarantee help with other packages.

SAS, MPLUS, and other statistical software packages are accessible for free using UF APPS: <http://info.apps.ufl.edu/> . There is a free (but limited in the size of models handled) Student version of MPLUS available for download from <http://www.statmodel.com>. Information about obtaining SAS and other statistical software for installation on your computer is available here: <http://helpdesk.ufl.edu/software-services/>

 I have recorded CONNECT recordings providing an intro to using SAS and MPLUS. The URL to access the recordings as well as PowerPoint slides and data sets used are available on the course CANVAS site.

RECOMMENDED TEXTBOOK

\* Khattree R & Naik D (1999). Applied multivariate statistics with SAS software (2nd ed.). Cary, NC: SAS Institute, Inc.

\* SAS documentation (especially the STATUG) available for free download as PDF files from <http://www.sas.com> .

\* Many examples, technical reports, and articles about covariance models and MPLUS available for free download from <http://www.statmodel.com> .

WEEKLY CLASS SCHEDULE

|  |  |  |
| --- | --- | --- |
| DATE | TOPIC/EVALUATION | ASSIGNMENTS/READINGS |
| Wk 1 | Module 1: Introduction, Data screening and management, Matrix Algebra | CONNECT Recording: Using SASText Chs. 1 & 2 |
| Wk 2 | Module 2: MANOVA | Text Chs. 4, 5, 6, 7, & 12 |
| Wk 3 | Module 2: MANOVA – continuedExam 1 (through material on 2-group MANOVA) |  |
| Wk 4 | Module 3: Multivariate Multiple Regression & Canonical Correlation | Text Chs. 3 & 15 |
| Wk 5 |
| Wk 6 | Module 4: Multivariate General Linear Model / MANCOVA | Text Ch. 8 |
| Wk 7 | Module 4: Multivariate General Linear Model / MANCOVA - continued |  |
| Wk 8 | Module 5: Classification and Description (Discriminant Analysis & Logistic Regression); Exam 2 | Text Chs. 10 & 11 |
| Wk 9 | Spring Break – no class |  |
| Wk 10 | Module 5: Classification and Description (Discriminant Analysis & Logistic Regression) - continued |  |
| Wk 11 | Module 6: Principal Components Analysis & Exploratory Factor Analysis | CONNECT Recording: Using MPLUSText Ch. 9 |
| Wk 12 | Module 6: Exploratory Factor Analysis - continuedNOTE: There will be no classroom work, as I will be doing grant reviews. Please view recorded materials. |  |
| Wk 13 | Module 7: Structural Equation Models | Text Ch. 16 |
| Wk 14 | Module 7: Structural Equation Models - Continued |  |
| Wk 15 | Review & Wrap-up |  |
| Wk 16 | Exam 3; Barebones Research Proposal Due |  |

Approved: Academic Affairs Committee: 10/97; 07/03; 06/06; 10/08; 09/15

 Faculty: 12/97; 07/03; 06/06; 11/08; 09/15

 UF Curriculum: 06/99