UNIVERSITY OF FLORIDA

COLLEGE OF NURSING

COURSE SYLLABUS

Spring 2020

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](mailto: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 (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 <http://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](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, readings, computer exercises, and class discussion.

# LEARNING ACTIVITIES

1. Data analysis with statistical packages for statistical techniques
2. Interpretation of findings from analysis
3. Critique of data analysis and interpretation of results in articles reporting research findings

# EVALUATION METHODS/COURSE GRADE CALCULATION

• Exercises: (each module is 5%) 35%

• 3 Exams (15%, 25%, 20%) 60%

• Bare Bones Research Proposal: 5%

100%

MAKE UP POLICY

If late submission 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/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: <http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades> .

COURSE EVALUATION

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

ACCOMMODATIONS DUE TO DISABILITY

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

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 student policies (<http://students.nursing.ufl.edu/currently-enrolled/student-policies-and-handbooks/>) and a full explanation of each of the university policies – (<http://students.nursing.ufl.edu/currently-enrolled/course-syllabi/course-policies>)

Attendance

UF Grading Policy

Religious Holidays

Counseling and Mental Health Services

Student Handbook

Student Use of Social Media

Faculty Evaluations

# 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 MEDIASITE 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/READING |
|  |  |  |
| Wk 1  01/07 | Module 1: Introduction, Data screening and management, Matrix Algebra | MEDIASITE Recording: Using SAS  Text Chs. 1 & 2 |
| Wk 2  01/14 | Module 2: MANOVA | MEDIASITE Recording for Module 2 & Text Chs. 4, 5, 6, 7, & 12 |
| Wk 3  01/21 | Module 2: MANOVA – continued  Exam 1 (through material on 2-group MANOVA) |  |
| Wk 4  01/28 | Module 3: Multivariate Multiple Regression & Canonical Correlation  I will be attending AACN conference – May not have in-person Class, depending on my departure time. | Text Chs. 3 & 15 |
| Wk 5  02/04 | Module 3: Multivariate Multiple Regression & Canonical Correlation - Continued |  |
| Wk 6  02/11 | Module 4: Multivariate General Linear Model / MANCOVA | Text Ch. 8 |
| Wk 7  02/18 | Module 4: Multivariate General Linear Model / MANCOVA - continued |  |
| Wk 8  02/25 | Module 5: Classification and Description (Discriminant Analysis & Logistic Regression);  Exam 2 | Text Chs. 10 & 11 |
| Wk 9  03/03 | Spring Break – no class |  |
| Wk 10  03/10 | Module 5: Classification and Description (Discriminant Analysis & Logistic Regression) - continued |  |
| Wk 11  03/17 | Travelling to SNRS – No in-person class.  Module 6: Principal Components Analysis & Exploratory Factor Analysis | MEDIASITE Recording:  Using MPLUS  Text Ch. 9 |
| Wk 12  03/24 | Module 6: Exploratory Factor Analysis - continued |  |
| Wk 13  03/31 | Module 7: Structural Equation Models | Text Ch. 16 |
| Wk 14  04/07 | Module 7: Structural Equation Models - Continued |  |
| Wk 15  04/14 | Module 7: Structural Equation Models - Continued |  |
| Wk 16  04/21 | Review & Wrap-up – Last class |  |
| Wk 17  04/28 | Exam 3; Barebones Research Proposal Due |  |

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

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

UF Curriculum: 06/99