UNIVERSITY OF FLORIDA

COLLEGE OF NURSING

COURSE SYLLABUS

Fall 2018

COURSE NUMBER NGR 6840

COURSE TITLE Applied Statistical Analysis I

# CREDITS 3

# PLACEMENT Variable; Required Core Course

# PREREQUISITE NGR 6850 Research Methods and Evidence-based Practice

# or equivalent

# FACULTY Michael Weaver RN PhD FAAN

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# HPNP 2201A; Office hours: By appointment

# COURSE DESCRIPTION This course provides the student with the opportunity to examine procedures for advanced multivariate statistical procedures as applied in research. Emphasis is on the utilization and interpretation of multivariate procedures. An additional emphasis will be on critiquing data analysis in current research articles. The focus is on understanding and applying selected multivariate statistical procedures.

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

1. Critically examine theoretical principles of selected multivariate analyses and their application to nursing research.
2. Compare and contrast selected multivariate statistical methods used to analyze research data.
3. Develop the appropriate statistical design and analysis plan for selected research questions.
4. Utilize diagnostics to determine whether the underlying statistical assumptions are met, and to find outliers or influential cases.
5. Critique data analysis and interpretation of complex results in current research articles.

COURSE SCHEDULE

Section Day Time Room

2E46 Tuesday 8:30-11:30am HPNP G112

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. General Linear Model statistics
   1. Multiple regression
   2. Repeated Measures ANOVA
   3. Multi-level modeling
2. Probablistic statistics
   1. Logistic Regression
   2. Cox Hazards Regression
   3. Survival Analysis

# TEACHING METHODS

Lectures, readings, computer exercises, and class discussion.

# LEARNING ACTIVTIES

1. Interpretation of findings from analyses
2. Critique of data analysis and interpretation of results in articles reporting research findings.

# FEEDBACK

Unless otherwise advised, emails will be responded to within 2 working days, and feedback on assignments will be provided within 1 week from submission.

# EVALUATION METHODS/COURSE GRADE CALCULATION

Written assignments, examinations, and computer assignments.

* Weekly Exercises: (15 total; each exercise is 3%) 45%
* Quizzes (3 Total: 15%, 20%, 20%) 55%

# Total: 100%

MAKE UP POLICY

If lateness is unavoidable, notify the professor **prior to** the scheduled due date/time. **A 15% grade penalty 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: 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.

Student Use of Social Media

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 <https://sccr.dso.ufl.edu/process/student-conduct-code/>.  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

Accommodations due to Disability

Religious Holidays

Counseling and Mental Health Services

Student Handbook

Faculty Evaluations

Student Use of Social Media

DISABILITY STATEMENT

Students who wish to obtain individual accommodations due to special learning needs must register with the University of Florida Disability Resources Center (DRC) **at the beginning of each semester**. Accommodations are not retroactive, therefore, students should contact the DRC at the beginning of each semester in the term for which they are seeking accommodations. The DRC may be contacted at 352-392-8565 so that appropriate accommodations may be made.  **Individual accommodations require time for the Disability Resources Center (DRC) to approve and the faculty to respond to any special learning needs**.  **Each semester**, it is the students’ responsibility to notify all their faculty of any special accommodations **once approval by the DRC for special accommodations has been made**.  <https://drc.dso.ufl.edu/>

# REQUIRED TEXTBOOKS

Daniel, WW & Cross CL. (2013). *Biostatistics: A foundation for analysis in the health sciences.* 10th Edition. Wiley ISBN 978-1-118-30279-8 (use of e-book also acceptable).

# REQUIRED SOFTWARE

SAS Version 9.4 or later – Accessible for free via UF APPS (See: <http://info.apps.ufl.edu/>) or contact UF IT for local installation (see <https://www.software.ufl.edu/> - there is a fee for that).

RECOMMENDED TEXTBOOKS

While there are no recommended textbooks, it is useful to have on hand several SAS PDF manuals available for free download (information is also available in HELP when running SAS) from the SAS.COM website (<http://support.sas.com/documentation/cdl_main/94/docindex.html>). They are useful for both syntax and conceptual understanding of course topics, and will provide information not contained in text. Here are recommended downloads:

Base SAS 9.4 Procedures Guide Fifth Edition; Base SAS 9.4 Procedures Guide: Statistical Procedures; SAS 9.4 Formats and Informats: Reference; SAS/ETS 14.1 User's Guide; SAS/STAT 14.1 User's Guide; SAS 9.4 Statements: Reference, Fourth Edition;

WEEKLY CLASS SCHEDULE

| DATE | TOPIC/EVALUATION | ASSIGNMENTS/READINGS |
| --- | --- | --- |
| 08/28/2018 | Using UF Apps Stats Software - SAS;  Introduction  Exercise: Text p. 17, #6 | Review PowerPoint slides and CONECT recordings:  Using SAS Intro Part 1 (Slides 1-11)  Set-up, accessing in UF APPS, and file definitions   * **See ONCOURSE site for Link to recording**   Using SAS Intro Part 2  SAS Program-Related Definitions  SAS Program-Related Definitions (Slides 12 – 20)  Using SAS Intro Part 3  Running analyses and using other capabilities (Slides 21-29)   * **See ONCOURSE site for Link to recording**   Read Text Chapter 1 |
| 09/04/2018 | Descriptive Statistics  Exercise: Text p. 59, # 16 | Watch recorded lecture.  Read Text Chapter 2 |
| 09/11/2018 | Probability & Probability Distributions  Exercises:  Text p. 83, #3.5.2  Text p. 131 #22 | Watch recorded lecture.  Read Text Chapters 3 & 4 |
| 09/18/2018 | Sampling Distributions  Exercises:  Text pp. 158 & 159: #6, 10, 12, 18, 26 | Watch recorded lecture.  Read Text Chapter 5 |
| 09/25/2018 | Estimation  Exercises:  Text p. 206 # 14, 18, 22, 24, 28 | Watch recorded lecture.  Read Text Chapter 6 |
| 10/02/2018 | Hypothesis Testing  Exercises:  Text pp. 284-287 # 20, 22, 24, 34, 36  Quiz 01 | Watch recorded lecture.  Read Text Chapter 7 |
| 10/09/2018 | Non-parametric and distribution-free Statistics  Exercises:  Text p. 733-734 # 6, 8 | Watch recorded lecture  Read Text Chapter 13 |
| 10/16/2018 | Analysis of frequencies  Exercises:  Text p. 658-660 #16, 18, 20 | Watch recorded lecture.  Read Text Chapter12 |
| 10/23/2018 | Simple correlation and regression  Exercises:  Text p. 466 #18  Text p. 467 #20 | Watch recorded lecture.  Read Text Chapter 9 |
| 10/30/2018 | Hypotheses about means: ANOVA  Exercises:  Text p. 398 #54 | Watch recorded lecture.  Read Text Chapter 8 |
| 11/06/2018 | Multiple regression & the General Linear Model  Exercises:  Text p 527 #8  General Linear Model Exercise  Quiz 02 (11/01/2018) | Watch recorded lecture.  Read Text Chapters 10 and 11.1-11.3 |
| 11/13/2018 | Logistic Regression  Exercises:  Text p. 581 #11.4.2 | Watch recorded lecture.  Read Text Chapter 11 Section 11.4 |
| 11/20/2018 | Multi-Level Modeling  Multi-Level Modeling Exercise | Watch recorded lecture.  Review information at: <http://www.bristol.ac.uk/cmm/learning/multilevel-models/what-why.html>  Read example application here: <http://www.stat.columbia.edu/~gelman/research/published/multi2.pdf>  Read Chapter 6 SAS/Stat User’s Guide; Review Chapter 77 |
| 11/27/2018 | Survival Analysis  Exercises:  Text p.775 #12 | Watch recorded lecture.  Read Text Chapter 14 (14.1-14.4), and review 62, & 69, SAS/Stat User’s Guide |
| 12/04/2018 | Cox Proportional Hazards Model  Exercises  Cox Proportional Hazards Exercise | Watch recorded lecture.  Read Text Chapter 14 (14.5) and <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC478551/pdf/1409-03.pdf> ; Review Chapters 63 & 85, SAS/Stat User’s Guide |
| 12/11/2018 | Quiz #3 |  |

Approved: Academic Affairs Committee: 10/97; 07/03, 01/05, 10/08

Faculty: 12/97; 07/03, 01/05. 11/08

UF Curriculum: 06/99