UNIVERSITY OF FLORIDA

COLLEGE OF NURSING

COURSE SYLLABUS

SEMESTER/YEAR

COURSE NUMBER NGR 6840

COURSE TITLE Applied Statistical Analysis I

CREDITS 3

PLACEMENT Variable; Required Core Course

# PREREQUISITES NGR 6850: Research Methods and Utilization for

# Nursing

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# 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

3051 Web-based (asynchronous)

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

TEACHING METHODS

Lecture, audiovisual materials, written materials, computer exercises, written assignments, and on-line class discussions/ activities.

LEARNING ACTIVITIES

Readings, participation in discussion, interpretation of statistical analyses, critique of data analysis in articles reporting research findings.

EVALUATION METHODS/COURSE GRADE CALCULATION

|  |  |
| --- | --- |
| SPSS Computer Assignments (8 assigned/7 included in grade calculation); (10% each) | 70% |
| Research Critiques (2 assignments; 10% each) | 20% |
| Final Exam | 10% |
| Total | 100% |

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

# Polit, D. (2010). *Statistics and data analysis for nursing research* (2nd ed.). New York: Prentice Hall.

# **Additional readings will be assigned in E-learning/Canvas.**

RECOMMENDED TEXTBOOK

Field, A. (2013). *Discovering statistics using IBM SPSS Statistics* (4th ed.). London: Sage.

WEEKLY CLASS SCHEDULE

\***Assignments are due on the date assigned by** **11:59 pm**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WK** | **DATE** | **TOPIC/EVALUATION** | **READINGS \*** | **SPSS Application/**  **Assignments/Exams \*** |
| 1 | 1/6/15  *thru*  1/11/15 | INTRODUCTION  Introduction to course; Introduction to Data Analysis in an Evidence-based Practice Environment | Polit, Ch. 1 | Obtain and install SPSS  [**Due by 1/14/15**]  See Canvas “Getting Started” folder for instructions. |
| 2 | 1/12/15  *thru*  1/ 18/15 | HOW TO CREATE DATABASE AND USE SPSS  Orientation to SPSS; working with a data set |  | Assignment #1 – creating database; entering data  [**Due 1/21/15**] |
| 3 | 1/19/15  *thru*  1/25/15 | HOW TO DESCRIBE YOUR DATA WITH STATISTICS (Part I)  Frequency distributions: tabulating and displaying data | Polit, Ch. 2 |  |
| 4 | 1/26/15  *thru*  2/1/15 | HOW TO DESCRIBE YOUR DATA WITH STATISTICS (Part II)  Central tendency, variability, and relative standing | Polit, Ch. 3 | Assignment #2 –  Descriptive statistics  [**Due 2/4/15**] |
| 5 | 2/2/15  *thru* 2/8/15 | ARE TWO VARIABLES RELATED TO EACH OTHER?  Bivariate description: cross-tabulation & correlation | Polit, Ch. 4 | Assignment #3 –  Correlation  [**Due 2/11/15**] |
| 6 | 2/9/15 *thru*  2/15/15 | ARE TWO VARIABLES RELATED TO EACH OTHER?  Risk Indices: Odds Ratios and Relative Risk | Polit, Ch 4 | Assignment #4 –  Relative Risk  [**Due 2/18/15**] |
| 7 | 2/16/15  *thru* 2/22/15 | USING STATISTICS TO TEST HYPOTHESES  Statistical Inference | Polit, Ch. 5 | Research Critique #1  [**Due 2/25/15**] |
| 8 | 2/23/15 *thru* 3/1/15 | IS THERE A DIFFERENCE BETWEEN TWO GROUPS?  T-test | Polit, Ch. 6 | Assignment #5 –  T-test  [**Due 3/11/15**] |
| 9 | 3/2/15 *thru* 3/8/15 | ***SPRING BREAK*** |  |  |
| 10 | 3/9/15  *thru* 3/15/15 | ARE THERE DIFFERENCES BETWEEN > 3 GROUPS?  Analysis of Variance (ANOVA), Post-hoc analysis | Polit, Ch. 7 | Assignment #6 –  One-way ANOVA  [**Due 3/18/15**] |
| 11 | 3/16/15  *thru* 3/22/15 | WHICH VARIABLES PREDICT MY OUTCOME?  Multiple regression | Polit, Ch. 9  Polit, Ch. 10 | Assignment#7 –  Regression  [**Due 3/25/15**] |
| 12 | 3/23/15  *thru* 3/29/15 | HOW CAN I PREDICT DICHOTOMOUS OUTCOME VARIABLES?  Logistic regression | Polit, Ch. 12 | Assignment #8 –  Logistic Regression  [**Due 4/1/15**] |
| 13 | 3/30/15  *thru* 4/5/15 | WHAT IF MY DATA IS NOT NORMALLY DISTRIBUTED?  Chi-square and nonparametric tests | Polit, Ch. 8 | **Research Critique #2**  [**Due 4/8/15**] |
| 14 | 4/6/15  *thru* 4/12/15 | ADVANCED TOPICS:  HOW CAN I EVALUATE THE RELIABILITY OF MEASURES?  Factor analysis and internal consistency reliability | Polit, Ch. 13 |  |
| 15 | 4/13/15 *thru* 4/19/15 | ADVANCED TOPICS:  Missing data  Multilevel modeling | Polit, Ch. 14 |  |
| 16 | 4/20/15  *thru* 4/22/15 | REVIEW |  |  |
| EXAM WEEK | | ***FINAL EXAM:***  *This will be a web-based, open-book exam. Because the exam is open book, we will not use Proctor U for this exam. The exam will be administered in Canvas. The* ***exam will be open for a 24-hour period****:*  ***Exam opens at 8:00 am on Monday, April 27, 2015. Exam closes at 8 am on Tuesday, April 28, 2015.***  ***Please plan your schedules accordingly.***  *Once you open the exam, you will have* ***2 hours*** *to complete it.*  *You will be bound by the UF Honor Code. You may use your book and notes, but may not contact each other via any means of communication or access the internet.* | | |

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