UNIVERSITY OF FLORIDA

COLLEGE OF NURSING

COURSE SYLLABUS

**Spring 2020**

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

FACULTY Section 143C, Course Coordinator

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Section 1425

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Section 143B

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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

143C Web-based (asynchronous)

1425 Web-based (asynchronous)

143B 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% |
| Tests (2 tests; 5% each) | 10% |
| Total | 100% |

*Feedback on assignments will be returned within 1 week of due date. If there are exceptions*

*to this, you will be notified via Canvas.*

The College of Nursing utilizes ***ProctorU,*** a live proctoring service, for major examinations in graduate web-based online courses to ensure a secure testing environment.  See Canvas site for more information on Proctor U and how to create an account.

* Each student’s computer must be in compliance with Policy S1.04, *Student Computer Policy* and must contain a web cam, microphone, and speakers.
* CON IT Support office will oversee this process and provide technical assistance.

MAKE UP POLICY

If lateness is unavoidable, notify the professor **prior to** the scheduled due date/time. **A grade penalty of 10% 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>

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>.

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

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

Pallant, J. (2016). SPSS Survival Manual, 6th ed. McGraw Hill, New York, NY.

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WK** | **DATE** | **TOPIC** | **READ (chapter)** | **ASSIGNMENTS**\* |
| 1 | 1/6 - 1/12 | INTRODUCTION  Introduction to course; Introduction to Data Analysis in an Evidence-based Practice Environment | 1 | Obtain and install SPSS  [**Due by 1/12**] |
| 2 | 1/13 - 1/19 | HOW TO CREATE DATABASE AND USE SPSS  Orientation to SPSS; working with a data set |  | Assignment #1 – creating database; entering data [**Due 1/20]** |
| 3 | 1/21 - 1/26 | HOW TO DESCRIBE YOUR DATA WITH STATISTICS (Part 1)  Frequency distributions: tabulating and displaying data | 2 | Assignment #2 – Descriptive statistics  [**Due 1/26]** |
| 4 | 1/27 - 2/2 | HOW TO DESCRIBE YOUR DATA WITH STATISTICS (Part 2)  Central tendency, variability, and relative standing | 3 |  |
| 5 | 2/3 - 2/9 | ARE TWO VARIABLES RELATED TO EACH OTHER?  Bivariate description: cross-tabulation & correlation | 4 | Assignment #3 – Correlation  [**Due 2/9]** |
| 6 | 2/10 - 2/16 | ARE TWO VARIABLES RELATED TO EACH OTHER?  Risk Indices: Odds Ratios and Relative Risk | 4 | Assignment #4 – Relative Risk  [**Due 2/16]** |
| 7 | 2/17 - 2/23 | USING STATISTICS TO TEST HYPOTHESES  Statistical Inference | 5 | **Test 1:**  **[Due Sun 2/23 8pm-Tues 2/25 8am]** |
| 8 | 2/24 – 3/1 | ARE THERE DIFFERENCES BETWEEN TWO GROUPS?  T-test | 6 | Assignment #5 – T-test  [**Due 3/8]**  **Research Critique #1:** **[Due 3/8**] |
| 9 | 3/2 - 3/8 | ***SPRING BREAK*** |  |  |
| 10 | 3/9 - 3/15 | ARE THERE DIFFERENCES BETWEEN > 3 GROUPS?  Analysis of Variance (ANOVA), Post-hoc analysis | 7 | Assignment #6 – ANOVA  [**Due 3/15]** |
| 11 | 3/16 - 3/22 | WHICH VARIABLES PREDICT MY OUTCOME?  Multiple regression | 9 & 10 | Assignment#7 – Regression  [**Due 3/22]** |
| 12 | 3/23 - 3/29 | HOW CAN I PREDICT DICHOTOMOUS OUTCOME VARIABLES?  Logistic regression | 12 | Assignment #8 – Logistic Regression [**Due 3/29]** |
| 13 | 3/30 - 4/5 | WHAT IF MY DATA ARE NOT NORMALLY DISTRIBUTED?  Chi-square and nonparametric tests | 8 | **Research Critique #2:**  [**Due 4/5]** |
| 14 | 4/6 - 4/12 | HOW CAN I EVALUATE THE RELIABILITY OF A MEASURE?  Factor analysis and internal consistency reliability | 13 |  |
| 15 | 4/13 - 4/19 | REVIEW |  | **Test 2:**  **[Due Sun 4/19 8pm –Tues 4/21 8am**] |