UNIVERSITY OF FLORIDA

COLLEGE OF NURSING

COURSE SYLLABUS

Spring 2023

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

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| Hwayoung Cho, PhD, RN  Course Coordinator  Assistant Professor  Office: HPNP 2206  Office Phone: (352) 273-6347  Office Hours\*: Wednesday, 10:00am-12:00pm  Email: [hcho@ufl.edu](mailto:hcho@ufl.edu) | Lisa Domenico, PhD, RN, CARN  Assistant Professor  Office: JAX LRC  Office Phone: (352) 273-6637  Office Hours\*: Wednesday, 10:00am-12:00pm  Email: [ldomenico@ufl.edu](mailto:ldomenico@ufl.edu) |
| Lakeshia Cousin, PhD, APRN, AGPCNP-BC  Assistant Professor  Office: HPNP 2224  Office Phone: (352) 273-6318  Office Hours\*: Wednesday, 9:00am-11:00am  Email: [lakeshiacousin@ufl.edu](mailto:lakeshiacousin@ufl.edu) | Ellen L. Terry, PhD  Assistant Professor  Office: HPNP 2205  Office Phone: (352) 273-6441  Office Hours\*: Wednesday, 9:00am-11:00am  Email: [elterry@ufl.edu](mailto:elterry@ufl.edu) |
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# \*Faculty are generally available to meet with students (in the office or virtually) as listed above. Due to professional travel and other unavoidable obligations, faculty may not be present every week without notice. It is advisable that students confirm availability or make an appointment in advance.

# 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

Faculty Section Day Time

Dr. Cho 1425 Web-based

Dr. Domenico 143C Web-based

Dr. Cousin 143D Web-based

Dr. Terry 143B Web-based

This course will be delivered via instructional technology without face-to-face instruction. Any synchronous sessions may be audio visually recorded. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

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. Probabilistic statistics
   1. Logistic Regression
   2. Cox Hazards Regression
   3. Survival Analysis

# TEACHING METHODS

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

# LEARNING ACTIVTIES

Readings, participation in online discussion, conducting and interpreting statistical analyses, and critique of data analysis in articles reporting research findings.

Course assignments will consist of individual assignments, group assignments and quizzes. Please note that quizzes are an individual assignment.

EVALUATION METHODS/COURSE GRADE CALCULATION

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| Individual Assignments (5 assignments; 10% each) | 50% |
| Group Research Critiques (2 assignments; 10% each) | 20% |
| Individual Module Quizzes (6 quizzes; 5% each) | 30% |
| Total | 100% |

CLASS ATTENDANCE AND MAKE UP POLICY

Students are responsible for meeting all academic objectives as defined by the instructor. Absences count from the first class meeting. In general, acceptable reasons for absences from class include illness, serious family emergencies, special curricular requirements, military obligation, severe weather conditions, religious holidays, and participation in official University activities. Absences from class for court-imposed legal obligations (e.g., jury duty or subpoena) must be excused. Other reasons also may be approved.

There are **no opportunities for make-ups or extra credit**. Assignments are due on the dates and times posted in Canvas; however, we are sensitive to the unique challenges our students may encounter. If lateness is unavoidable, please **communicate with your instructor** **in advance of the deadline**. *Unexcused late submission results in a grade reduction; one point per day up to one week*. After one week, the assignments are not accepted*.* Make-up quizzes are not available. Please make every effort to turn in all assignments on time to avoid getting behind in your course.

Students may not attend classes unless they are registered officially or approved to audit with evidence of having paid audit fees. After the end of drop/add, the Office of the University Registrar provides official class rolls/addenda to instructors. Students who do not attend at least one of the first 2 class meetings of a course or laboratory in which they are registered and who have not contacted the academic unit to indicate their intent may be dropped from the course. **Students must not assume that they will automatically be dropped if they fail to attend the first few days of class.** The academic unit will notify students dropped from courses or laboratories by posting a notice in the academic unit office. Students may request reinstatement on a space-available basis if documented evidence is presented. The University recognizes the right of the individual professor to make attendance mandatory. After due warning, professors may prohibit further attendance and then assign a failing grade for excessive absences. Students who have registration changes, at any time during the semester, should verify their registrations before the last day of class of the term. Retroactive drop/add or other registration changes will not be permitted.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/graduate/regulations/#text>

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)

\* 84 is the minimal passing grade

For more information on grades and grading policies, please refer to University’s grading policies: <https://catalog.ufl.edu/graduate/regulations/>.

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, <https://disability.ufl.edu/>) 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.

INCLUSIVE LEARNING ENVIRONMENT

We strive to provide an inclusive learning environment as we prepare graduates who care, lead, and inspire. As we share our nursing values and personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels they belong to the College of Nursing community. <https://nursing.ufl.edu/wordpress/files/2022/08/BSN_DNP-Handbook-Jul-28-2022.pdf>

CIVILITY STATEMENT

Civility among all individuals in the CON (faculty, staff and students) is vital for an inclusive environment that fosters personal reflection, growth and a collective harmony. <https://nursing.ufl.edu/wordpress/files/2022/08/BSN_DNP-Handbook-Jul-28-2022.pdf>

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/policies/student-honor-code-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/>)

# 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 TEXTBOOKS

Pallant, J. (2020). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM*

*SPSS, 7th ed.* McGraw Hill, New York, NY.

SPECIFIC COURSE POLICIES

* For this class, modules will open Wednesday morning at 8:00 AM and will close Tuesday evening at 11:59 PM.
* Assignments and quizzes are due Tuesday evening at 11:59 pm. Quizzes will be accessible for four days, closing on the due date and time. Due dates for assignments are clearly posted in Canvas for each module.
* Feedback on assignments will be returned within 2 weeks of the due date. If there are extenuating circumstances that delay the grading of your work, an announcement will be posted on Canvas.
* Communication with faculty should be conducted using Canvas email. For assignment questions, please use the discussion board on Canvas. You can expect a response to your email or query with 1 business day (Monday – Friday). Please note that responses may be delayed during weekends and holidays, so please plan ahead to reach us and get your questions answered

WEEKLY CLASS SCHEDULE

\***All assignments due on Tuesday @ 11:59 pm, as noted on Canvas**

*The weekly class schedule is subject to change based on course needs.*

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| **DATES** | **TOPIC** | **ASSIGNMENTS/READINGS**\* | **PROGRAM OBJECTIVES** |
| **MODULE 1: Getting Started** | | |  |
| 1/9 – 1/24 | INTRODUCTION  Introduction to course; Introduction to Data Analysis in an Evidence-based Practice Environment | * Read Chapter 1 * Access SPSS * Sign up for group * Complete syllabus quiz   [**Due 1/17**]   * Individual Assignment #1   [**Due 1/24]** | 2 |
| HOW TO CREATE DATABASE AND USE SPSS  Orientation to SPSS; working with a data set | 2 |
| **MODULE 2: Describing your Data** | | |  |
| 1/25 – 2/7 | HOW TO DESCRIBE YOUR DATA WITH STATISTICS (Part 1)  Frequency distributions: tabulating and displaying data | * Read Chapter 2 & 3 * Individual Assignment #2   [**Due 2/7]**   * Quiz 1   [**Open 2/3-2/7**] | 2 |
| HOW TO DESCRIBE YOUR DATA WITH STATISTICS (Part 2)  Central tendency, variability, and relative standing | 2 |
| HOW TO CREATE AND INTERPRET GRAPHS AND TABLES | 2 |
| **MODULE 3: Determining Relationships Between Variables** | | |  |
| 2/8 – 2/21 | ARE TWO VARIABLES RELATED TO EACH OTHER?  Bivariate description: cross-tabulation & correlation | * Read Chapter 4 * Individual Assignment #3   [**Due 2/21]**   * Quiz 2   [**Open 2/17-2/21]** | 2 |
| ARE TWO VARIABLES RELATED TO EACH OTHER?  Risk Indices: Odds Ratios and Relative Risk | 2 |
| **MODULE 4: Hypothesis Testing** | | |  |
| 2/22 – 3/7 | USING STATISTICS TO TEST HYPOTHESES  Statistical Inference | * Read Chapter 5 * Research Critique #1   **[Due 3/7**]   * Quiz 3   [**Open 3/3-3/7]** | 1 |
| **MODULE 5: Determining Differences Between Groups** | | |  |
| 3/8 – 3/28  *Spring Break* 3/13-3/17 | ARE THERE DIFFERENCES BETWEEN TWO GROUPS?  T-test | * Read Chapter 6 & 7 * Individual Assignment #4   [**Due 3/28]**   * Quiz 4   [**Open 3/24-3/28]** | 2 |
| ARE THERE DIFFERENCES BETWEEN > 3 GROUPS?  Analysis of Variance (ANOVA), Post-hoc analysis | 2 |
| **MODULE 6: Predicting Outcomes** | | |  |
| 3/29 – 4/11 | WHICH VARIABLES PREDICT MY OUTCOME?  Multiple regression | * Read Chapter 9, 10 & 12 * Individual Assignment #5   [**Due 4/11]**   * Quiz 5   [**Open 4/7-4/11]** | 2 |
| HOW CAN I PREDICT DICHOTOMOUS OUTCOME VARIABLES?  Logistic regression | 2 |
| **MODULE 7: Other Statistical Issues and Application to DNP** | | |  |
| 4/12 – 4/25 | WHAT IF MY DATA ARE NOT NORMALLY DISTRIBUTED?  Chi-square and nonparametric tests | * Read Chapter 8 & 13 * Research Critique #2   **[Due 4/25]**   * Quiz 6   [**Open 4/21-4/25]** | 1 |
| HOW CAN I EVALUATE THE RELIABILITY OF A MEASURE?  Factor analysis and internal consistency reliability | 1 |
| COURSE SYNTHESIS & APPLICATION TO YOUR DNP PROJECT | 1 |

Program Objectives:

The purposes of the curriculum leading to the degree Doctor of Nursing Practice are to:

1. Prepare the student to acquire advanced competencies in increasingly complex practice and emerging leadership roles.
2. Provide the student with a significant and comprehensive knowledge base that supports scientific skepticism and the incorporation of new knowledge in advanced nursing practice.
3. Provide the student with enhanced knowledge for the acquisition of leadership skills used to improve nursing practice and patient outcomes.

Upon completion of the doctoral program, the graduate will be able to:

1. Evaluate scientific bases from extant and emerging areas of knowledge for advanced nursing practice.
2. Evaluate decision support systems to solve clinical problems for individuals, aggregates and systems.
3. Develop advanced leadership and collaborative skills to mobilize interdisciplinary teams to solve highly complex clinical problems.
4. Develop expertise to formulate health policy and provide leadership in establishing clinical excellence and creating new models of cost-effective health care delivery.
5. Critically assess, plan, intervene and evaluate the health experiences of individuals, aggregates and systems to provide safe, evidence-based care.
6. Synthesize knowledge of cultural diversity and global perspectives in delivering health care and in critiquing nursing systems.

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