



**Advanced Statistics
NURS 6322.060
Spring 2023**

Scheduled Class Days and Times: Online

Instructor's Name: Kevin Gosselin, Ph.D.

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Office Hours: Virtual Office Hours: Wednesday from 12:30 – 3:30 PM CST or by appointment for phone call or video conference. Additional days and times may be arranged upon request. Please email faculty to make arrangements/obtain Zoom link.

*Best way to contact me.

Course Description: Students will study advanced statistical techniques in health care research together with discussions on the corresponding research designs. Topics include various types of general linear modeling, multiple regression, as well as non-parametric tests.

Prerequisites: NURS 6320

Student Learning Outcomes:

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

1. Approach quantitative data analysis by screening the data, obtaining, and interpreting sample characteristics or descriptive statistics, and testing assumptions.
2. Understand the mechanism of inferential statistics (i.e., the theory of hypothesis testing and probability).
3. Select and conduct appropriate non-parametric tests for ordinal data or in the case of non-normal distribution.
4. Conduct the appropriate statistical tests of general linear models to answer questions on differences.
5. Conduct the appropriate statistical tests of regression to answer questions on relationships
6. Use statistical software, e.g., SPSS and G*Power.
7. Report and interpret statistical results and findings.

Required Textbooks and Readings:

1. Field, A. (2017). Discovering statistics using IBM SPSS: North American edition, 5th edition. Thousand Oaks, CA: Sage. Publications.
2. Pallant, J. (2016) SPSS Survival Manual, 6th edition. New York: McGraw Hill Education
3. Bannon, W. (2013). The 7 steps of data analysis. Stats Whisperer Press. ISBN 978-0-615-85729-9
4. American Psychological Association. (2019). Publication manual of the American Psychological Association (7th ed). APA. ISBN-13: 978-1-4338-3216-1.

Recommended Textbooks and Readings:

1. Glaser, A. N. (2014) High-Yield Biostatistics, Epidemiology, & Public Health. 4th edition. Philadelphia, PA; Lippincott Williams and Wilkins ISBN-10: 1451130171
2. Shadish, W. R., Cook, T. D., & Campbell, D. T. (2001). Experimental and quasiexperimental designs for generalized causal inference (2nd ed.). Belmont, CA: Wadsworth Publishing.
3. Polit, D. F. & Beck, C. T. (2012). Nursing research: Generating and assessing evidence for nursing practice. (9th ed.). Philadelphia, PA: J. B. Lippincott.

Special Course Notes:

- 1) This course requires you to use IBM SPSS Statistic Standard Grad Pack. Licenses (6 and 12 month) are available through the link (<http://www.onthehub.com/spss>).

Assignments and Weights/Percentage/Point Values (Should equal 100%)

1. Participation	5%
2. Discussion boards	15%
3. GLM Database Lab - SLR	20%
4. GLM Database Lab - MLR	20%
5. GLM Database Lab - ANCOVA	20%
6. Non-parametric Application	20%

Grading Scale:

Specific guidelines and grading criteria for all assignments are in the Modules. Final grades for the course will be determined based upon the following point assignments:

- A - 90-100
- B - 80-89
- C - 70-79
- D - 60-69
- F - Below 60

Grades will not be rounded when calculating the average (79.5 is not rounded to 80, and 89.5 is not rounded to 90). Students are required to achieve an average of 80% (B) to complete the course successfully.

Academic Integrity: Cheating of any kind, as defined in Section 8 of the UT Tyler Manual of Policies and Procedures (MOPP) for Student Affairs (<https://www.uttyler.edu/mopp/>), will not be tolerated. Consequences may include:

- reprimand
- exam failure
- course failure
- expulsion from the Nursing program
- expulsion from the University
- other consequences as assigned

Exam and homework materials, questions, and problems are the intellectual property of faculty, UT Tyler, or publishers.

- These materials may not be distributed without permission.
- Distributing or uploading them to online resources destroys the integrity of the assignment and the course, allowing others an unfair advantage by letting them view the materials.
- Uploading these materials to online resources is a violation of UT Tyler's academic misconduct policies and may result in formal conduct charges.
- Sanctions for uploading or otherwise divulging the contents of these materials can include:
 - a reduced or failing grade on an assignment
 - a reduced or failing grade for the course
 - removal from the Nursing program
 - removal from UT Tyler

Late Policy: 5% will be deducted each day an assignment is past due unless prior arrangements have been made with your course faculty. Extenuating circumstances may apply.

Repeating a Course: Students repeating this course may not use previously submitted assignments nor utilize the same patients for an assignment. Submitting the same or slightly modified assignments from previous semesters is considered self-plagiarism and is subject to academic discipline, including failing the assignment or the course.

Attendance and Make-up Policy: Attendance/participation is expected. Make-up for exams, quizzes, assignments, and missed clinical time is at the instructor's discretion.

Graded Course Requirements Information:

Participation: Attendance and participation is expected for the course. This requires posting to discussion boards, regular reading of the assigned material, and completion of assignment.

Discussion Boards: Students are expected to share ideas through the discussion board assignments. These ideas should be gained from the readings and literature by noting the source when appropriate and interpreting through your own words. It is also expected that you will use a more complex thought process to dissect and analyze what you read in the literature and in the thoughts of fellow students.

Assignment 1 (Generalized Linear Model – SLR Data Base Lab): This assignment allows you to apply your understanding of simple linear regression, the mathematical underpinnings of the generalized linear model, and post hoc testing through submission of an output file with the analysis and write up of the results in APA format. Additional information will be provided in class (20% of your grade).

Assignment 2 (Generalized Linear Model – MLR Data Base Lab): This assignment builds upon your understanding of GLM and simple linear regression by applying your understanding of multiple linear regression through submission of an output file with the analysis and write up of the results in APA format. Additional information will be provided in class (20% of your grade).

Assignment 3 (ANOVA Data Base Lab): This assignment allows you to demonstrate your knowledge of analysis of covariance through submission of an output file with the analysis and write up of the results in APA format. Additional information will be provided in class (20% of your grade).

Assignment 4 (Non-Parametric Methods Application): This assignment provides an opportunity to apply your understanding of non-parametric methods via a case study analysis. Additional information will be provided in class (20% of your grade).

Please Note: Detailed information along with grading rubrics for course assignments will be provided in Canvas.

Important Course Dates:

Classes Begin: January 9, 2023

Census Date (withdraw without penalty): January 20, 2023

Last Date to Withdraw: March 20, 2023. Students please notify your course faculty and contact your advisor.

Calendar of Topics, Readings, and Due Dates:

NURS 6322 Course Calendar - Spring 2023				
Course Schedule				
Week #	Date	Class Topic	Readings	Assignments Due
1	1/9	Course Orientation <ul style="list-style-type: none"> • Syllabus • Course Calendar • Assignments Summary 	Peruse textbooks and software	1. Introductions Discussion 2. Statistical Literacy
	1/16	Martin Luther King Jr. Holiday, all offices closed, no classes.		
2 & 3	1/17 to 1/29	Study Maps/Sampling/Power Analysis/Data Screening	Bannon pg 62, 86, 302-306 Field Chapt 2	Power Analysis Assignment/ Discussion
4 & 5	1/30 to 2/12	General Linear Model (GLM) GLM 1 Simple Linear Regression	Chapt 9, 12	Data Base Lab 1 (DBL)
6 & 7	2/13 to 02/26	General Linear Model (GLM 2) Multiple Linear Regression	Chapt 9, 12	Data Base Lab 2 (DBL)
8 & 9	2/27 to 3/12	GLM - Comparing Means adjusted for other predictors or Analysis of Covariance (ANCOVA)	Chapt 13	Data Base Lab 3 (DBL)
	3/13	Spring Break for faculty and students, all offices closed, no classes.		
10 & 11	03/20 to 04/02	GLM 4 Repeated Measures Designs		Discussion post
12 & 13	04/03 to 04/16	Non-parametric Analysis	Field Chapt 7 Bannon p. 35.	Assignment: Non-parametric Analysis
14	4/17	Course Summation		Discussion post
	04/28 and 04/29	Spring commencement		
<p>Calendar Weeks start on Monday and end the following Sunday.</p> <p>Assignments due on the designated Tuesdays by 11:59 pm.</p> <p>Discussion Board forums run on a regular calendar week (start on Mondays at 8 am and end the following Sunday at 11:59 pm).</p> <p>*Course calendar is subject to change as faculty determines.</p>				

UT Tyler School of Nursing Justice, Equity, Diversity and Inclusion Statement:

The University of Texas at Tyler School of Nursing aspires to create, foster, and sustain a culture of justice, equity, diversity, and inclusion irrespective of one's identity. We value and embrace all backgrounds, experiences, and identities, realizing that no one group, person or perspective has all the answers. We are richer when our individual skills, knowledge, experiences, cultures, backgrounds, and identities are combined in an accepting community. We strive to ensure that every individual gets a fair and equal chance to participate and thrive in a nurturing environment where all feel a sense of belonging. We are committed to intentionally and deliberately creating a diverse community that instills a sense of equitable justice and belonging for everyone affiliated with our school.

School of Nursing Policies and Additional Information:

https://www.uttyler.edu/nursing/college/student_guide_and_policies.php

Student Resources and University Policies are provided in Canvas.