NURS 6327

Data Science PhD Track

Offered, Year

3 Credits

Scheduled Class Days and Times: Online

Instructor's Name: Jane M. Carrington, PhD, RN, FAMIA, FAAN
Office: Virtual
Phone: 480-216-6589
Email: janecarrington@uttyler
Office Hours: Wednesday, 7-8am zoom

Course Description: This course will introduce students to the essential principles of data management, focusing on the collection, storage, and processing of data within healthcare systems. Students will learn to design and implement data pipelines, enhancing their ability to manage and use healthcare data effectively.

Prerequisites:

Students are required to have academic and/or working knowledge of advanced statistics and modeling methods.

Student Learning Outcomes:

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

1. Examine healthcare data standards and development of phenotypes for population healthcare analysis.
2. Evaluate questions for appropriateness of a particular database.
3. Analyze the characteristics of big data.
4. Evaluate the process of developing a database.
5. Apply principles of data management to determine the pathway of data to a particular database.
6. Analyze data from a selected database for a population of interest.

Required Textbooks and Materials:

Clarke, E. (2023) Data Analytics, Data Visualization & Communicating Data, Kenneth Fornari publisher, ISBN-10: 1998855015

Additional reading as assigned and websites

Assignments and Weights/Percentage/Point Values:

Assignments	Value	Towards Final Grade
Discussions (2)	10 pts	10%
Phenotype Data Assignment	30 pts	20%
Data Analysis	30 pts	20%
Final Paper	50 pts	50%
Total	120 pts	100%

Grading Scale:

This course grade is based on successful completion of performance of assignments using traditional A-F grading scale.

Although the university policy allows 60 days for grade appeals, the School of Nursing follows a stricter timeline of 10 days to facilitate students' timely progression through the curriculum. In the case of extenuating circumstances, please consult the Associate Dean of Academic Affairs for guidance.

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, clinical time missed is at the discretion of the instructor.

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.

Course Schedule:

Modules	Week and Content Available Date	Content/Assignments
1 Databases	1 (August 28 begin)	Introductions, review syllabus, Introduction to databases
	2 (September 1st , Labor Day)	Database Architecture
	3 (September 8th)	Database Design
	4 (September 15th)	Database Testing **Discussion 1 due**
2 Big Data	5 (September 22nd)	Introduction to Big Data
	6 (September 29th)	The "Seven V's of Big Data Analytics" framework—Volume, Velocity, Variety, Variability, Veracity, Value, and Visualization
	7 (October 6th)	Data Flow and Management
	8 (October 13th)	Ask Questions to Extract Answers **Discussion 2 due**
3 Data Science	9 (October 20th)	Introduction to Data Science
	10 (October 27th)	Categories of Data Science descriptive, inferential, predictive, and prescriptive **Data Analysis Assignment**
	11 (November 3rd)	Categories of Data Science continued, phenotyping from database **Phenotype Assignment due**
	12 (November 10th)	Introduction to Data Science and Statistics
	13 (November 17th)	Introduction to R
	14 (November 24-28 Thanksgiving Holiday)	
	15 (December 1st)	Summary and Work on final paper
	16 (December 8th)	**Final Paper Due**