



**Data Analysis and Healthcare Technology
NURS 5387
Fall 2022**

Scheduled Class Days and Times: Online

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Office Hours: Virtual Office Hours Friday 2-5PM CST and by appointment. Please email faculty for the Zoom link.

Course Description: Learning to effectively manage and analyze healthcare data is essential to the practice of healthcare informatics. In this course, students examine data standards, management, analysis, application and transformation. The students will have hands-on experience with data analysis from conception of a project to presenting the results. Students will examine other ways technologies are being used in healthcare such as simulation, robotics, wearable devices and communication.

Prerequisites: None

Student Learning Outcomes:

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

1. Explain the importance of data standards and management in the interoperability of information in healthcare.
2. Demonstrate competency in designing, implementing, and reporting on a data analysis project.
3. Design multiple data visualization techniques.
4. Analyze the health status and potential needs of a given population using governmental and organizational data sources.
5. Explore the various ways technologies are being used in healthcare to improve patient outcomes.

Required Textbooks and Readings:

McGonigle, D. & Mastrian, K. G. (2018) *Nursing informatics and the foundation of knowledge 4th edition*. Burlington, MA: Jones & Bartlett Learning

ISBN-13: 9781284122688

Used or Rental is acceptable – no requirement to use online resources

This text is also used in NURS 5381, 5383, & 5387

All students need to load and install Microsoft Excel 2016 and the Excel Analysis ToolPak for PC/Mac. Instructions will be found in Canvas.

Other learning material will be provided in the Canvas course.

Optional Textbook:

American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th ed.). Washington, D.C.: Author.
ISBN-13: 9781433832161

Assignments and Weights/Percentage/Point Values

Criteria for Evaluation	Percentage of Grade
Participation	5%
Discussions	20%
Required Webinars	20%
Application Assignments	25%
Toolkit Learning Assessment Exercises - Word	10%
Module Quizzes	20%
Total	100%

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.

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.

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:

The following is an overview of the major graded assignments. Detailed information will be provided in class.

The toolkit competencies are focused on students' development of expert-level competencies in the Microsoft Office applications which is a foundational skill for an informatics nurse specialist. This course focuses on Microsoft Excel. These skills will be assessed in learning assessment exercises (20%) and then applied in application assignments (20%).

Each module will have a Assess Your Understanding quiz. The module assessment may be taken as many times as the student wishes. There is no time limit to each attempt however, there is no save and return function. A minimum of 80 out of 100 possible points for successful completion. These assessments are worth 15%. Discussion Boards (20%) and webinars (20%) cover topics of importance in nursing informatics and may be conducted by faculty or guest speakers. This course is focused on data analysis and visualization.

Calendar of Topics, Readings, and Due Dates

The course topics are based on the 2018 ANCC Test Plan for Certification in Nursing Informatics and the 2017 Healthcare Information and Management Systems Society (HIMSS) Certified Associate in Health Information and Management Systems (CAHIMS) Certification.

The course schedule, including assignment due dates and last day to withdraw without penalty, may be found in the course schedule posted in the "Syllabus" in Canvas.

Module Information	Dates	Topics
Toolkit	Aug 29-Dec 4, 2022	Toolkit Competencies: Data analysis & visualization software – spreadsheet software
Module 1 Introductions, Overview, Objectives & Assessments Week 1	Aug 29-Sept 4, 2022	Introductions, Overview, Objectives & Assessments
Module 2 Let's Talk Nerd Weeks 2-4	Sept 5-25, 2022 Census Date: September 9, 2022	Information systems, databases and structured query language (SQL)
Module 3 Healthcare Data Weeks 5-6	Sept 26 -Oct 9, 2022	Data Standards & Management, data usage, natural language process, learning organizations, risk, and patient identification
Module 4 Data Analysis & Visualization Week 7-9	Oct 24-Nov 13, 2022	Healthcare data analytics and visualization
Module 5 Using Data to Improve Public Health Weeks 10-12	Oct 24-Nov 13, 2022 Last day to withdraw: Nov. 7th	Role of EHR, public health vs. population health, data for health promotion, evidence generation
Week 13 – Fall Holiday	Nov 21-27, 2022	
Module 6 Using Technology to Improve Healthcare Education and Delivery Week 14	Nov 28-Dec 4, 2022	Using Technology to Improve Healthcare Education
Wrap up and Finals Week 15	Dec 5-10, 2022	DB: Reflection on Learnings

School of Nursing Policies and Additional Information:

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

Student Resources to assist you in this course:

[UT Tyler Student Accessibility and Resource \(SAR\) Office](#) (provides needed accommodations to students with document needs related to access and learning)

[UT Tyler Writing Center](#)

[The Mathematics Learning Center](#)

[UT Tyler PASS Tutoring Center](#)

[UT Tyler Supplemental Instruction](#)

[Robert Muntz Library \(Links to an external site.\)](#) and [Library Liaison](#)

[Canvas 101](#) (learn to use Canvas, proctoring, Unicheck, and other software)

Digital Support Toolkit (for supported courses only. Students are automatically enrolled in the toolkit for supported courses)

LIB 422 -- Computer Lab where students can take a proctored exam

[The Career Success Center](#)

[UT Tyler Testing Center](#)

[Office of Research & Scholarship Design and Data Analysis Lab](#)

Resources available to UT Tyler Students

[UT Tyler Counseling Center](#) (available to all students)

[TAO Online Support Center](#) (online self-help modules related to mental & emotional health)

[Military and Veterans Success Center](#) (support for all of our military-affiliated students)

[UT Tyler Patriot Food Pantry](#)

[UT Tyler Financial Aid and Scholarships](#)

[UT Tyler Registrar's Office](#)

[Office of International Programs](#)

[Title IX Reporting](#)

[Patriots Engage](#) (available to all students. Get engaged at UT Tyler.)

University Policies and Information

Withdrawing from Class: Students, you are allowed to [withdraw](#) (drop) from this course through the University's Withdrawal Portal. Texas law prohibits students who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at other 2-year or 4-year Texas public colleges and universities. Make sure to consider the impact withdrawing from this class has on your academic progress as well as the financial implications. We encourage you to consult your advisor(s) and financial aid for additional guidance. CAUTION #1: Withdrawing before census day does not mean you get a full refund. Please see the [Tuition and Fee Refund Schedule](#). CAUTION #2: All international students must check with the [Office of International Programs](#) before withdrawing. All international students are required to enroll full-time for fall and spring terms.

Final Exam Policy: Final examinations are administered as scheduled. If unusual circumstances require that special arrangements be made for an individual student or class, the dean of the appropriate college, after consultation with the faculty member involved, may authorize an exception to the schedule. Faculty members are required to maintain student final examination papers for a minimum of three months following the examination date.

Incomplete Grade Policy: If a student, because of extenuating circumstances, is unable to complete all of the requirements for a course by the end of the semester, then the instructor may recommend an Incomplete (I) for the course. The "I" may be assigned in lieu of a grade only when

all of the following conditions are met: (a) the student has been making satisfactory progress in the course; (b) the student is unable to complete all course work or final exam due to unusual circumstances that are beyond personal control and are acceptable to the instructor, and (c) the student presents these reasons prior to the time that the final grade roster is due. The semester credit hours for an Incomplete will not be used to calculate the grade point average for a student.

The student and the instructor must submit an Incomplete Form detailing the work required and the time by which the work must be completed to their respective department chair or college dean for approval. The time limit established must not exceed one year. Should the student fail to complete all of the work for the course within the time limit, then the instructor may assign zeros to the unfinished work, compute the course average for the student, and assign the appropriate grade. If a grade has not been assigned within one year, then the Incomplete will be changed to an F or NC if the course was originally taken under the CR/NC grading basis.

Grade Appeal Policy: UT Tyler's Grade Appeal policy requires the completion of a Grade Appeal form for this action to take place. The grade appeal begins with the instructor of your course. If you do not agree with the decision of the instructor, you may then move your appeal to the department chair/school director for that course. If you are still dissatisfied with the decision of the chair/director, you may move the appeal to the dean of the college offering that course, who has the final decision. Grade appeals must be initiated within sixty (60) days from the date of receiving the final course grade. The grade Appeal form is found on the [Registrar's Form Library](#).

Disability/Accessibility Services: The University of Texas at Tyler has a continuing commitment to providing reasonable accommodations for students with documented disabilities. Students with disabilities who may need accommodation(s) in order to fully participate in this class are urged to contact the Student Accessibility and Resources Office (SAR) as soon as possible to explore what arrangements need to be made to ensure access. If you have a disability, you are encouraged to visit the SAR Portal (<https://hood.accessiblelearning.com/UTTyler/>) and complete the New Student Application. For more information, please visit the [SAR webpage](#) or call 903.566.7079.

Military Affiliated Students: UT Tyler honors the service and sacrifices of our military-affiliated students. If you are a student who is a veteran, on active duty, in the reserves or National Guard, or a military spouse or dependent, please stay in contact with me if any aspect of your present or prior service or family situation makes it difficult for you to fulfill the requirements of a course or creates disruption in your academic progress. It is important to make me aware of any complications as far in advance as possible. I am willing to work with you and, if needed, put you in contact with university staff who are trained to assist you. Campus resources for military-affiliated students are in the [Military and Veterans Success Center \(MVSC\)](#). The MVSC can be reached at MVSC@uttyler.edu or via phone at 903.565.5972.

Academic Honesty and Academic Misconduct: The UT Tyler community comes together to pledge that "Honor and integrity will not allow me to lie, cheat, or steal, nor to accept the actions of those who do." Therefore, we enforce the [Student Conduct and Discipline policy](#) in the Student Manual Of Operating Procedures (Section 8).

FERPA: UT Tyler follows the Family Educational Rights and Privacy Act (FERPA) as noted in [University Policy 5.2.3](#). The course instructor will follow all requirements in protecting your confidential information.

COVID Guidance: The UT Tyler community of Patriots respects the rights of others to wear a mask if they desire to do so. COVID guidelines may change as the situation warrants, and students should follow the instructions warranted by the situation.

Absence for Official University Events or Activities: This course follows the practices related to approved absences as noted by the Student Manual of Operating Procedures ([Sec. 1 -501](#)).

Absence for Religious Holidays: Students who anticipate being absent from class due to a religious holiday are requested to inform the instructor by the second class meeting of the semester.

Campus Carry: We respect the right and privacy of students who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>.