Midwestern State University
Robert D. & Carol Gunn College of Health Sciences & Human Services

Data Analysis Course Syllabus

4123 NURS/RADS/RESP/SOWK

3 Credit Hours

Spring 2025

Updated: 01/2025

Professor

Mandy Sedden MSRS, RT(R)
Email: mandy.sedden@msutexas.edu
Use this information in the subject line: 4123_your last name_topic of the message.
Email is the best way to reach me. If I have not responded within 72 hours, please email me again.
Phone: (940) 397-4664
Office Location: Midwestern State University
      3410 Taft Blvd.
      Centennial Hall 430M
      Wichita Falls, TX 76308
Office Hours: Please make an appointment

Course Communication

Contact information for the instructor is listed at the beginning of this syllabus. Email is the instructor's preferred mode of communication. The instructor will respond or at least acknowledge email messages from students within a maximum of five (5) business days when MSU is in session. Beyond standard university holidays and breaks, the instructor will notify students of any extended periods of time when email contact is not practical (professional meetings, etc).

Please use the following format in the subject header for your email:
4123x22_your last name_topic of message
Example: 4123x22_Smith_Quiz 4

When emailing the instructor, please include your full name, course and section number, and a thorough explanation in your message. This will help expedite your request or needs.

When there is a need to contact students, the instructor will use the student's MWSU email account, students.mwsu.edu. The instructor is not responsible for sending emails to any other email account. Faculty members will not be responsible for keeping up with other email addresses for students. If you have not established this account, do so as soon as possible by going to: http://infosys.mwsu.edu/email.asp

The instructor will respond or at least acknowledge email messages from students within a maximum of five (5) business days when MSU is in session. MSU is open only 4 days a week in the summer, so be mindful that if you email the instructor on a Friday you might not get a response until Monday. Beyond standard university holidays and breaks, the instructor will notify students of any extended periods of time when email contact is not practical (professional
meetings, etc.). I will meet face-to-face with any interested students by appointment only. This meeting is optional and must be confirmed by email ahead of time with me.

Feedback
Feedback varies throughout the course. The News section of the course is where I will send messages to the entire class. It is best to set up your D2L account to receive an email notification (to the email of your choice) when News items are posted.

1. Click the down arrow in the News section on the 4123 course home page
   Select Notifications
2. Check the box next to "News- new item available" and then check any other boxes you wish to receive an email notification from.
3. Check the email address you wish to send email notifications. If you need to change this, select "change your email settings" and enter the new email address. This email address should be an email address you frequently check.

Steps to forward D2L email to another email address:
1. Click on the **Envelope Icon** in the top menu bar.
2. Click **Email**.
3. Click **Settings** in the top right corner of the inbox.
4. Scroll down to **Forwarding Options** and type in the new email or uncheck the box to turn forwarding off.
5. Click **Save**.
6. Remember to go to the new email and click to verify the email address.

If you are having technical difficulties accessing the course or any other technical issues please contact distance.learning@msutexas.edu .

Course Overview

The focus of this course is to provide an interdisciplinary data analysis class specifically for health sciences and human services majors using techniques and data structures relevant to clinical investigations. General topics include choosing correct procedures and using statistics to understand clinical data. Specific topics include but are not limited to basic statistics, measures of correlation and difference, hypothesis testing and bias, confidence intervals, reliability and validity, significance, power analysis, levels of evidence, sample size and distribution, assessing effects of treatment, quality improvement, relative risk and relative risk reduction, and odds ratio.

This is a three-credit course designed to teach the selection, application, and evaluation of statistical analysis techniques online. There will be the same amount of material covered in this course as a traditional classroom-based course and you will need to devote a substantial amount of time outside of the classroom mastering the material. Your responsibility for the online content includes **but is not limited to**, viewing chapter lectures and homework reviews, completing computer tutorial lessons, reading corresponding text material, participating in discussion forums, testing, and submitting assignments as directed by the professor and indicated on the class syllabus. You are responsible for checking the class D2l page daily.

This is a very intense course that includes a great deal of material that builds on the previously presented material. It is essential that you keep up with the class and do not fall behind. Make sure you have scheduled adequate time to truly master the material each week. Adding new material without understanding the previous work will only compound the problem making it very easy to find yourself with difficulties halfway through the course.

Weekly content including lectures covering the main topics will be available within each unit. In addition, a review of the homework assignments will be posted in each unit *I HIGHLY suggest attempting the homework before you view the review of the problems. What seems like a very straightforward topic can be much more difficult when you try to apply the concepts. If you don't try before you hear the answers you won't know what you have difficulty with before moving forward with the material. This will result in poor outcomes on your quizzes, and final. Trust me on this one!*

Course Rationale: Healthcare providers must be able to critique and understand the strengths and weaknesses of research design and analysis to be able to develop evidence-based practices in a clinical setting. This course will prepare healthcare providers for the selection and application of statistical analysis techniques and the evaluation of the results derived from this analysis. Students will learn various entry-level statistical techniques and analyze them within published clinical research. This course is designed for the adult learner and involves extensive independent learning and mastery of subject material.

Course Objectives

Upon completion of this course, the student will:

- Develop a broad-based understanding of descriptive statistics and selected statistical techniques
- Choose and make the appropriate graph/table for a set of data Describe the characteristics of the normal distribution
- Identify different levels of measurement.
- Explain Type I and Type II error and the consequences of each error
- Differentiate independent and dependent samples
- Explain the effect of alpha, the number of tails, and sample size on the critical value of t.
- Determine the power of an independent-samples t-test and the sample size necessary to have an independent-samples t-test with sufficient power.
- Interpret the results from a chi-square test for contingency tables.
- Choose an appropriate statistical test to use in analyzing a data set
- Evaluate diagnostic and screening tests appropriately.
- Understand the factors that form the basis for hypothesis and statistical testing.
- Apply statistical outcomes to processes of quality improvement.
- Use statistical outcomes to evaluate the effects of treatment.

Textbook

Heavey, E. (2019). Statistics for nursing. A practical approach, (3rd ed.). Burlington, MA: Jones and Bartlett. ISBN: 9781284142013

Required Software

You must use Microsoft Excel software to complete some assignments. Microsoft Excel is the spreadsheet software included in Microsoft Office. You will not be able to complete some of the assignments in Excel unless you add in the free Analysis Pak. To do this, follow the instructions below from Microsoft: (Applies To: Excel 2016, Excel 2013, Excel 2010, Excel 2007, Excel 2016 for Mac)

1. In Windows, go to Excel and click the File tab, then click Options, and then click the Add-Ins category. (If you're using Excel 2007, click the Microsoft Office Button, and then click Excel Options. In the Manage box, select Excel Add-ins and then click Go. If you're using Excel for Mac, in the Excel file menu go to Tools then Excel Add-ins.
2. In the Add-Ins box, check the Analysis ToolPak box, and then click OK.
   a. If Analysis ToolPak is not listed in the Add-Ins available box, click Browse to locate it.

b. If you are prompted that the Analysis ToolPak is not currently installed on your computer, click Yes to install it.

3. The Data Analysis button appears on the Data Tab to the far right. This is where the formulas are located.

Teaching Strategies

- Online delivery with asynchronous interactions between students and teacher, interactive discussions, quizzes, and a comprehensive final examination.

Attendance

This is an online course, and as such, there are no mandatory sessions. However, the students should be vigilant in checking their email and logging onto D2L. Regular checks will ensure messages from the instructor and fellow students are received in a timely manner. This course is on a schedule that will be strictly adhered to (see table below). The instructor will be available to meet face-to-face with any student who is interested. Please email the instructor to schedule an appointment.

Requesting a Withdrawal

Last Day for "W", March 25 by 4:00 p.m. – Drops after this date will receive grades of "F."
Refer to the Undergraduate Bulletin for details about receiving a grade of "Incomplete" in a course. In an emergency or extenuating circumstance, a student may request a grade of "Incomplete" in a course before grades are submitted. If the instructor grants the "Incomplete," the student has until thirty (30) days after the beginning of the next long semester to complete the course requirements. If the student does not complete the course requirements within the deadline, the grade of "Incomplete" will automatically convert into a grade of "F."

Grading/Evaluation

Evaluation

30% Quizzes
45% Discussion Board
25% Comprehensive Final Exam

Grading Scale

A = 90-100
B = 80-89
C = 70-79
D = 60-69
F = 59 and below

Midterm Grades

In order to help students keep track of their progress toward course objectives, the instructor for this class will provide a Midterm Progress Report through each student's WebWorld

account. **[only at-risk students will be reported**]. Midterm grades will not be reported on the students' transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand at the midpoint of the semester. Students earning below a C at the midway point should schedule a meeting with the professor.

Technical Difficulties

On occasion, you may experience problems with accessing D2L, accessing class files located within D2L, connecting with your internet service, or you may encounter other computer related problems. Make the professor aware of a technical problem as soon as possible. If a problem occurs on our end, such as D2L failure, then a due date extension will typically be granted. However, keep in mind it is your responsibility to have (or have access to) a working computer in this class. Assignments and tests are due by the due date, and personal computer technical difficulties will not be considered reason for the instructor to allow students extra time to submit assignments, tests, or discussion postings. Dropbox assignments that can be attached in an email should be emailed to the professor as soon as a problem is encountered. Failure to do so may result in points being lost, regardless of connection issues.
For help options:
- For D2L issues go online go to the Distance Education Helpdesk
- By phone call the Distance Education office at 940-397-4868 between 8am and 5pm.
- Use the D2L help link in D2L.
- Contact your professor.
- For other computer access issues, go online to the MSU Information Technology Website.

Student Responsibilities

As a student enrolled in this course, you will be responsible for adhering to and meeting posted deadlines and due dates. Posted closing dates along with assignment due dates and deadlines found in the Course Calendar within D2L will be strictly enforced. If an assignment does not meet the posted deadline, a grade of zero (0) will be recorded for that assignment. Extenuating circumstances do occur and will be addressed on an individual basis. NOTE: waiting until the last minute to submit an assignment does not constitute an extenuating circumstance.

Concealed Handgun Carry

Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at https://msutexas.edu/campus-carry/index.php .

Active Shooter

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit Safety / Emergency Procedures. Students are encouraged to watch the video entitled "*Run. Hide. Fight.*" which may be electronically accessed via the University police department's webpage: *"Run. Hide. Fight."*

Special Needs

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable adjustments in its policies, practices, services, and facilities to ensure equal opportunity for qualified persons with disabilities to participate in all educational programs and activities.

The Office of Disability Services (ODS) provides information and assistance, arranges accommodations, and serves as a liaison for students, instructors, and staff. The ODS has assistive devices such as books on tape, recorders, and adaptive software which can be loaned to qualified individuals. A student/employee who seeks accommodations on the basis of disability must register with the Office of Disability Services in the Counseling Center, Clark Student Center Room 168 (940)397-4140, https://mwsu.edu/student-life/disability/ . Documentation of disability from a competent professional is required.

Individuals with grievances related to discrimination or lack of accommodation on the basis of a disability are encouraged to resolve the problem directly with the area involved. If the matter remains unresolved, advice and/or assistance will be provided by the Office of Disability Services for resolution. The grievance procedure may be found in the Student Handbook and Activities Calendar. The ADA Coordinator may be contacted at (940)397-4140, or 3410 Taft Blvd., Clark Student Center Room 168.

Honor System

NURS/RADS/RESP/SOWK 4123 adheres to the MSU Code of Conduct. Academic dishonesty, however small, creates a breach in academic integrity. A student's participation in this course comes with the expectation that his or her work will be completed in full observance of the MSU Code of Student Conduct. A student should consult the current Student Handbook for answers to any questions about the code.

Many components of NURS/RADS/RESP/SOWK 4123 are designed to be highly interactive with students helping each other learn. Students are encouraged to take full advantage of many resources available including online D2L course resources, Internet sites, other textbooks and journals, faculty, and peers when answering objectives. This interactive collegial learning environment is conducive to lifelong learning.

Specific components of NURS/RADS/RESP/SOWK 4123 are designed to represent the efforts of each student individually and are not to be shared or copied (plagiarized) from other sources. These components include the discussion board, group activities, module quizzes, and the comprehensive final exam. When students submit their efforts for grading, they are attesting they abided by this rule.

Cheating includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or completing other assignments; or (3) the acquisition of tests or other academic materials belonging to the university faculty or staff without permission.

Plagiarism includes, but is not limited to: the use of, by paraphrase or direct quotation without correct citation in the text and on the reference list, the published or unpublished works of another person. Students may not submit papers and assignments that they have previously submitted for this or other courses. The use of materials generated by agencies engaged in "selling" term papers is also plagiarism. Students are encouraged to review the tutorials and suggested websites for more information about plagiarism. Papers and other assignments may be submitted to an external agency for verification of originality and authenticity. Academic dishonesty (cheating, plagiarism, etc.) will not be tolerated in this class. Whenever a student is unsure of whether a particular situation will be interpreted as academic dishonesty, the student should ask the instructor for clarification. If students are guilty of academic dishonesty, a grade of zero (0) may be given for the quiz, assignment, etc. Cases may also be referred to the Dean of Students for possible dismissal from the university.

Note: By enrolling in this course, the student expressly grants MSU a "limited right" in all intellectual property created by the student for the purpose of this course. The "limited right" shall include, but not limited to: the right to reproduce the student's work product in order to verify originality and authenticity as well as for educational purposes. Specifically, faculty may submit student papers and assignments to an external agency to verify originality and authenticity to detect plagiarism.

Administrative Process

Unresolved issues related to this course should be first addressed between the student and the course instructor. If there is no resolution, students must follow this sequence:

1. Director of Interdisciplinary Studies
   a. Dr. Randy Case (940) 397-4652
2. Department Chair
   a. BSRS, Dr. Lynette Watts, lynette.watts@msutexas.edu
   b. BSRC, Dr. Jennifer Anderson (940) 397.4656
   c. BSN, Dr. Robin Lockhart (940) 397-4614
   d. BSW, Dr. Satya N. Ayinagadda (940) 397-4438
3. College Dean

Data Analysis Assignment Details

Syllabus Agreement

The first step in starting this course is to read the syllabus in its entirety and complete the Syllabus Agreement quiz. By taking the Syllabus Agreement quiz you are stating that you have completely read, understand, and agree to the syllabus and its content. The unit 1 exam will **<u>not</u>** open until you have completed this step

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Assignments

Assignments are a significant portion of the grade and represent the application of the material studied. All assignments are to be submitted as instructed in each unit. Assignments must be received prior to the deadline. Late assignments are not accepted beyond the deadline. A zero will be recorded for assignments not submitted or meeting the final deadline. **All assignments must be written at the baccalaureate level and will be graded for accuracy, completeness, quality, spelling, grammar, punctuation, and integrity.**

Independent Reading Assignments
Unit 1: Chapter 1
Unit 2: Chapter 2
Unit 3: Chapter 3
Unit 4: Chapters 5 & 6
Unit 5: Chapters 7 & 9
Unit 6: Chapters 11 & 13
Final: Review all chapters covered in the course

*Supplemental note outlines and chapter review questions/videos are provided within D2L to help guide the reading assignments.

Discussion Board (45%)

The discussion board is a mandatory component in this course. All initial posts are due by <u>Sunday at midnight the first week the unit is open</u>. <u>Response posts are due by the due date listed for each unit</u>. Assignments are made specifically for this board. Students are expected to

complete the calculations and write formally (no shorthand or text messaging abbreviations) and use APA format and referencing when appropriate. Thoughtful responses, constructive critique of fellow students, and meaningful participation are expected. Keep in mind the discussion board is a formal assignment and part of your final grade. **Late discussion board posts are not be accepted beyond the deadline. A zero will be recorded for assignments not submitted or meeting the final deadline.** All assignments must be written at the baccalaureate level and will be graded for accuracy, completeness, quality, spelling, grammar, punctuation, and integrity. Review the grading rubric for each discussion board assignment.

Quizzes (30%)

In each of the units, a quiz will be administered within D2L. These quizzes are open book, open notebook, but you will only have one hour to complete them and must be prepared as there will not be enough time to research every answer. Quizzes must be completed prior to the expiration dates listed in this syllabus. Quiz grades and answers will be released after the deadline of each quiz. Specific questions regarding the quizzes may be addressed to the instructor. **Quizzes will not be made up if missed and zero (0) will be recorded. No extra credit activities are available.**

If students have technical difficulties during a quiz, they should use the "Report a Problem" link located on the top toolbar within D2L to contact the MSU distance education Support Staff and send an email to the course instructor explaining what happened.

Final Exam (25%)

The final examination is comprehensive and consists of 50 randomized multiple-choice questions; with about 5 questions from each chapter. You will have 120 minutes to complete the final examination. You will be required to use LockDown Browser and Monitor (Webcam). Make sure you have the most recent version of the LockDown Browser on your computer. You can install the latest version here: https://msutexas.edu/distance/lockdown-browser.php. Chromebook Laptops are NOT compatible with the LockDown Browser, so you will need to locate a different device for the final exam. The Final Examination can be taken any time between the exam open dates that are listed in the syllabus. You must complete all module tests prior to taking the final examination. You will need to show your ID in Respondus before it will allow you to take the exam (so have your photo ID close).

10pts will be deducted from your exam grade if you do not do a thorough room scan and 5 pts will be deducted for each time you leave the room while testing. A thorough room scan includes the area around you and behind the computer. You are expected to take this exam alone without anyone in the room.

Tentative Course Schedule

(All assignments are due at midnight central standard time (CST)

Date	Assignment
Tuesday, Jan. 21	Course opens
Friday, Jan. 24	Syllabus Agreement Quiz
Monday, Feb. 3	Unit 1 Quiz Unit 1 Discussion Board
Monday, Feb. 17	Unit 2 Quiz Unit 2 Discussion Board
Monday, March 3	Unit 3 Quiz Unit 3 Discussion Board
March 10-14	Spring Break
Monday, March 24	Unit 4 Quiz
Monday, April 7	Unit 5 Quiz Unit 5 Discussion Board
April 17 & 18	Holiday Break
Monday, April 21	Unit 6 Quiz Unit 6 Discussion Board
Tuesday, April 22	Final Exam opens at 8 am
Monday, May 5	Final Exam closes at midnight