



EPBI 6344 Data Management for Biostatistics

Credit Hours: 3

Semester: Spring 2026

Class Location: Online

Modules open on Sundays at 8 am. **All times are US CST.**

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Office Hours by Appointment

Prerequisite: None

Course Overview: This class is a graduate course to learn and practice statistical skills in data management in population health research. More specifically, this course covers important data management techniques, such as data programming and manipulation, data storage and security, data cleaning, and others using two different packages, Jamovi and R Studio. We also cover Excel for creating tables and graphs. Each student will learn two statistical packages to run descriptive and inferential statistics, such as t-test, χ^2 -test, ANOVA, and regression. However, for the sake of learning, we will learn Jamovi first and practice all assignments; then, move onto R Studio.

Student Learning Outcomes:

By the end of the course, students should have a basic understanding of the data management for biostatistics. This includes:

- Learn to download national level data and documentation from the federal agencies
- Practice data management and manipulations, such as labeling, recoding, transferring data
- Compute and interpret descriptive statistics
- Follow ethical norms and rules for acquiring, managing, sharing, securing, and analyzing data
- Give students hands-on experience all these data management procedure
- Practice communicating statistical results to public

MPH Generalist Program Competencies:

The course objectives listed above address the following CEPH &/or MPH program competencies.

CEPH Competencies
<i>Evidence-based Approaches to Public Health</i>
2. Select quantitative and qualitative data collection methods appropriate for a given public health context.
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate.
4. Interpret results of data analysis for public health research, policy, or practice.



Communication

- 19. Communicate audience-appropriate public health content, both in writing and through oral presentation to a non-academic, non-peer audience with attention to factors such as literacy and health literacy.**

Required textbook: All the textbooks are available online for free.

Jamovi: <https://www.rensvandeschoot.com/tutorials/jamovi-for-beginners/>
<https://www.openbookpublishers.com/books/10.11647/obp.0333>
<https://blog.jamovi.org/2018/10/23/transforming-variables.html>
<https://www.youtube.com/watch?v=7tlvuYO76Ok>

R: <https://cran.r-project.org/doc/manuals/R-intro.pdf>
https://www.stat.purdue.edu/scs/docs/R_Tutorial.pdf

Any required supplemental readings will be posted on Canvas. Extensive reference materials are available at the Robert R. Muntz Library at UT Tyler and the Watson Wise Library at UT Health Science Center at Tyler.

Course Assessment / Methods of Evaluation

Readings: Read textbook regarding the course schedule. For instance, if we cover data recoding, read relevant chapter in Jamovi & R. Additional assignments specific to each lecture will be posted as needed. Make sure to follow instructions for assignment completion posted within each module. You are responsible for any additional materials provided, so please check Canvas regularly.

Synchronous Sessions: There will be a total of **4 synchronous sessions** that will be held via Microsoft Team Meeting. Meetings will be on Tuesday evening from 6 to 8 pm CST and each session will be recorded. The instructors will provide questions or activities for deeper understanding for an hour, and/or the remaining time will be Q&A or individual meeting. Actual in-time attendance is not-required yet required one of the following two ways to obtain attendance points. Each student **MUST** attend or submit a 1-page reflection paper on recordings to obtain full credit. A total of 6 % of final grade is designated for this activity.

Assignments: Assignments will be given out throughout the course based on assigned readings and materials covered in each module as homework. The assignments will be worth 48% of your final grade. There will be a total of 10 assignments. **Assignments are due by Tuesday nights at 11:59pm.**

Mid-Term & Final Exam: Mid-term and final exam will comprise real data analysis (BRFSS), interpretation, and oral presentation. The BRFSS (Behavioral Risk Factor Surveillance System) (<https://www.cdc.gov/brfss/index.html>) is the national health survey by phone interviewing, which has more than 400,000 adults each year. For the sake of class purpose, I minimized the data for only Texas and selected variables only. The mid-term exam will be worth 23% of the final grade; the final exam will be 23%. Each exam includes presentation slides. Midterm will focus on data analysis plan, and the final will focus on descriptive analysis.

For the midterm (total 400 points), each student is to 1) download data, along with questionnaire and codebook (50 points), 2) load data in Jamovi (50 points), 3) select at least 5 variables you want to work



on (50 points), **4** explain the measurements of those variables (50 points) **5** explain your plan of data analysis (include your research questions(s), 100 points), and **5** present in PPT slides (100 points).

For the final exam (total 400 points), each student is to **1**) present your research question again (from your midterm, 50 points), **2**) introduce your data (source, sampling methods and size, main purpose of the survey or data collection, 50 points), **3**) run the descriptive statistics (table) for each variable (frequencies, mean, median, standard deviation, minimum, maximum, etc.), with brief interpretations for each table (100 points), **4**) graphs (histogram or box plot), with brief interpretations for each graph (100 points), and **5**) present in PPT slides (100 points).

The oral presentation (about 10-15 minutes, including PowerPoint slides appropriately formatted and sourced) on their midterm and final projects. Details of the presentation, including the length and format of the presentation will be provided by the instructors.

Task	Midterm (400 pts)	Final Exam (400 pts)
Download data (data, questionnaire, & codebook)	50	
Load data in Jamovi	50	
Select at least 5 variables	50	
Explain the measurement for 5 variables	50	
Explain your data analysis plan	100	50
Explain about the data and/or survey		50
Descriptive analysis (tables)		100
Descriptive analysis (graphs)		100
PowerPoint slides file upload	100	100

Extra Point: This course will offer one-time for extra points. Student who completed a course evaluation survey at the end of the semester and submit their screenshot on canvas (no need to submit your answers, but your completion message on screen). I will give you 20 points toward one of your assignments. For example, if your assignment #3 score was 80, your final score on assignment #3 will be 100.

Otherwise, **NO EXTRA CREDIT WILL BE GIVEN** at the end of the semester (except a course evaluation survey). The average of each student’s grade will determine the final course grade, and no additional work will be allowed. The grades in the gradebook at the end of the semester are the final grades, no curves will be given.

Overall Grading Structure:

- 6% - Participation (Synchronous sessions, 100 points)
- 48% - Homework (850 points)
- 23% - Midterm exam (400 points)
- 23% - Final exam (400 points)

Grading Scale:

- A = 90-100
- B = 80-89
- C = 70-79



D = 60-69
F = below 60

Student Responsibilities/Expectations ONLINE

Class etiquette dictates that you will:

1. Be active in class online as will be evidenced by participation in assigned activities as well as synchronous or asynchronous discussions.
2. Submit required assignments on time per requirement by the instructor. If there is any reason that may prevent a student from doing so, the student must inform the professor ahead of time and not make any excuses for failing to do so. It is your personal responsibility to complete assignments on time; make sure to use an electronic or paper calendar to keep up with your due dates for continued success in this course.

Email Correspondence: All email correspondence will be through the UT-Tyler/UTHSCT email system. Personal email accounts will not be used for any class related matters (ex. assignments, absence notifications, grades, etc.). All students are responsible for checking their UT-Tyler/UTHSCT email accounts regularly. Also, we will utilize “Chat” function in Canvas.

AI use policy: I will allow you to use AI to do statistical software work, as AI can be very useful source to learn software with ease not only this semester but also in your future.

Late Assignments/ Assessments: Students need to contact the instructor if they anticipate submitting an assignment late. Any late assignments will be subject to a 5% deduction each day for the first week (35% if submitted a week late) and an additional 10% for each day thereafter. Assignments turned in over 2 weeks late (14 days) will receive a grade of 0 for the assignment. This policy includes homework and any assignment. Reasonable accommodations will be made under special circumstances. If you need special accommodations, you must contact the Professor BEFORE the due date for the assignment.

Course Schedule (can be changed with advanced notice)

Date	Topic	Competency	Assessment
Week 1			
1/12-16	Introduction to data management	CEPH #2	
Week 2			
1/19-23	Websites for health data	CEPH #2	
Week 3			
1/26-30	Data acquisition and storage (proposal)	CEPH #2	
Week 4			
2/2-6	Data documentation and codebook	CEPH #2	Assignment #1
Week 5			



2/9-13	Introducing Software - Jamovi	CEPH #2, 3	Assignment #2
Week 6			
2/16-20	Introducing Software – R Studio	CEPH #2, 3	Assignment #3
Week 7			
2/23-27	Data management (labeling, recoding)	CEPH #2, 3	Assignment #4
Week 8			
3/2-6	Data cleaning and transformation	CEPH #2, 3	Assignment #5
Week 9			
3/9-13	<i>Spring break</i>		
Week 10			
3/16-20	Data analysis plan	CEPH #2, 3	Assignment #6
Week 11			
3/23-27	<i>Midterm Exam - Presentation</i>	CEPH #2, 3, 4	Oral presentation
Week 12			
3/30-4/3	Descriptive Statistics - tables	CEPH #2, 3, 4	Assignment #7
Week 13			
4/6-10	Descriptive Statistics - graphs	CEPH #2, 3, 4	Assignment #8
Week 14			
4/13-17	R Studio Practice - 1	CEPH #2, 3, 4	Assignment #9
Week 15			
4/20-24	R Studio Practice - 2	CEPH #2, 3, 4	Assignment #10
Week 16			
4/27-5/1	<i>Final Exam - Presentation</i>	CEPH #3, 4, 19	Oral presentation



Student Resources:

Faculty can update student resources to provide additional supports appropriate for each course.

Resources to assist you in the 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](#)
- [Upswing \(24/7 online tutoring\) - covers nearly all undergraduate course areas](#)
- [Robert Muntz Library](#) 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)
- [MySSP App](#) (24/7 access to Student Support Program counseling through phone or chat and online wellness resources available in a variety of languages)
- [Student Assistance and Advocacy Center](#)
- [Military and Veterans Success Center](#) (supports for our military-affiliated students)
- [UT Tyler Patriot Food Pantry](#)
- [UT Tyler Financial Aid and Scholarships](#)
- [UT Tyler Student Business Services](#) (pay or set up payment plans, etc.)
- [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 may [withdraw](#) (drop) from this course using the [Withdrawal Portal](#). Withdrawing (dropping) this course can impact your Financial Aid, Scholarships, Veteran Benefits, Exemptions, Waivers, International Student Status, housing, and degree progress. Please speak with your instructors, consider your options, speak with your advisor, and visit the One-Stop Service Center (STE 230) or email enroll@uttyler.edu to get a complete review of your student account and the possible impacts to withdrawing. We want you to make an informed decision. UT Tyler faculty and staff are here for you and often can provide additional support options or assistance. Make sure to carefully [read the implications for withdrawing from a course and the instructions](#) on using the [Withdrawal portal](#).

Texas law prohibits students from dropping more than six courses during their entire undergraduate career*. The six courses dropped includes those from other 2-year or 4-year Texas public colleges and



universities. Consider the impact withdrawing from this class has on your academic progress and other areas, such as financial implications. We encourage you to consult your advisor(s) and Enrollment Services 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. **CAUTION #3:** All UT Tyler Athletes must check with the Athletic Academic Coordinator before withdrawing from a course. **CAUTION #4:** All veterans or military-affiliated students should consult with the [Military and Veterans Success Center](#).

* Students who began college for the first time before 2007 are exempt from this law.

Artificial Intelligence Statement

UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy. *Refer to the About This Course section of the UT Tyler Syllabus Module for specific information on appropriate use of AI in your course(s).*

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 must 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 place 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 coursework 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 before 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.

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 meet 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 yet to be assigned within

one year, then the Incomplete will be changed to an F, or NC. If the course was initially taken under the CR/NC grading basis, this may adversely affect the student's academic standing.

Grade Appeal Policy

Disputes regarding grades must be initiated within sixty (60) days from the date of receiving the final course grade by filing a Grade Appeal Form with the instructor who assigned the grade. A grade appeal should be used when the student thinks the final course grade awarded does not reflect the grades earned on assessments or follow the grading scale as documented in the syllabus. The student should provide the rationale for the grade appeal and attach supporting document about the grades earned. The form should be sent via email to the faculty member who assigned the grade. The faculty member reviews the rationale and supporting documentation and completes the instruction section of the form. The instructor should return the form to the student, even if a grade change is made at this level. If the student is not satisfied with the decision, the student may appeal in writing to the Chairperson of the department from which the grade was issued. In situations where there is an allegation of capricious grading, discrimination, or unlawful actions, appeals may go beyond the Chairperson to the Dean or the Dean's designee of the college from which the grade was issued, with that decision being final. The Grade Appeal form is found in the [Registrar's Form Library](#).

NOTE: The Grade Appeal Form is different from the Application for Appeal form submitted to the Student Appeals Committee, which does not rule on grade disputes as described in this policy.

Disability/Accessibility Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA), the University of Texas at Tyler offers accommodations to students with learning, physical, and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or a history of modifications or accommodations in a previous educational environment, you are encouraged to visit <https://hood.accessiblelearning.com/UTTyler/> and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with the Assistant Director Student Accessibility and Resources/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <https://www.uttyler.edu/disability-services>, the SAR office located in the Robert Muntz Library, LIB 460, email saroffice@uttyler.edu, 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 your faculty member 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 your faculty member aware of any complications as far in advance as possible. Your faculty member is willing to work with you and, if needed, put you in contact with university staff who are trained to assist you. The [Military and Veterans Success Center \(MVSC\)](#) has campus resources for military-affiliated students. The MVSC can be reached at MVSC@uttyler.edu or via phone at 903.565.5972.

Students on an F-1 Visa

To remain in compliance with Federal Regulations requirements you must do the following:

- Traditional face-to-face classes: Attend classes on the regular meeting days/times.



- Hybrid Classes: Attend all face-to-face classes convened by the instructor according to the schedule set for your specific course.
- Online course: Only one online course can count toward your full-time enrollment. Students are expected to be fully engaged and meet all requirements for the online course.

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 to protect your confidential information.

Absence for Official University Events or Activities

This course follows the practices related to [Excused Absences for University Events or Activities](#) as noted in the Catalog.

Absence for Religious Holidays

This course follows the practices related to [Excused Absences for Religious Holy Days as noted in the Catalog](#).

Absence for Pregnant Students

This course follows the requirements of Texas Laws SB 412, SB 459, SB 597/HB 1361 to meet the needs of pregnant and parenting students. Part of the supports afforded pregnant students includes excused absences. Faculty who are informed by a student of needing this support should make a referral to the Parenting Student Liaison. NOTE: Students must work with the Parenting Student Liaison in order to receive these supports. Students should reach out to the Parenting Student Liaison at parents@uttyler.edu and also complete the [Pregnant and Parenting Self-Reporting Form](#).

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>.



Assignments

Assignment number	Task
1	<ul style="list-style-type: none">• Data source• Download: data, questionnaire, codebook• Explain 5 variables from the data
2	<ul style="list-style-type: none">• Jamovi practice: loading the data• First three variables (screenshot)
3	<ul style="list-style-type: none">• R Studio practice: loading the data• First three variables (screenshot)
4	<ul style="list-style-type: none">• Jamovi: recoding, labeling (at least 3 variables)
5	<ul style="list-style-type: none">• Jamovi: handling missing, DK, NA (at least 3 variables)
6	<ul style="list-style-type: none">• Analysis plan: research question(s)• Selecting variables• Data handling plan
7	<ul style="list-style-type: none">• Jamovi: descriptive analysis• tables and interpretation (at least 2 continuous and 2 categorical variables)
8	<ul style="list-style-type: none">• Jamovi: descriptive analysis• graphs and interpretation (at least 2 continuous and 2 categorical variables)
9	<ul style="list-style-type: none">• R Studio: descriptive analysis• tables and interpretation (at least 2 continuous and 2 categorical variables)
10	<ul style="list-style-type: none">• R Studio: descriptive analysis• graphs and interpretation (at least 2 continuous and 2 categorical variables)