

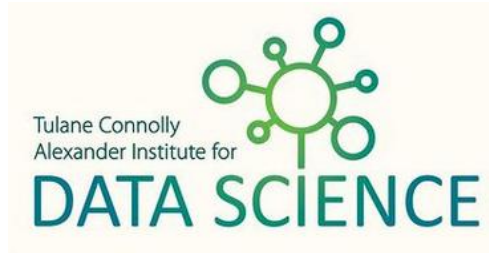
Introduction to Data

DATA-1010-02

Spring 2026: 01/12/2026- 05/07/2026

Class Hours: Tues/Thurs, 11:00am – 12:15pm

Location: Norman Mayer 200B



Instructor: John Levendis

Office Location: Howard-Tilton Memorial Library B20

Email: jlevendis@tulane.edu

Office hours: Please see Module 0 in the course's Canvas page for the latest office hours.

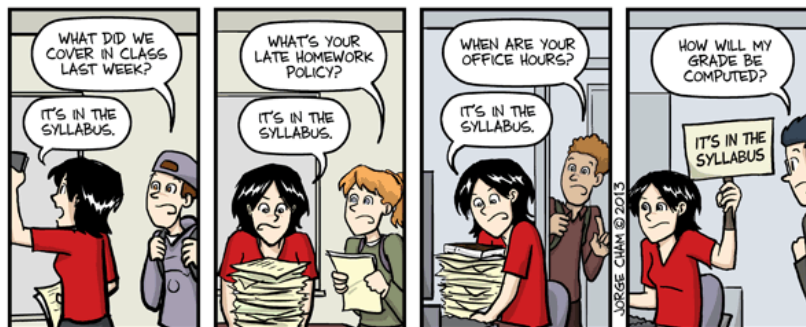
Peer Mentor: Joseph Raphael

As an additional educational resource for students, your peer mentor's responsibilities include answering easier questions about content or the course, taking attendance, helping during demo sessions, participating in discussion, facilitating review sessions outside of class, and meeting with students and groups during the semester. All general course concerns and grade questions should be directed to Dr. Levendis. In addition to Joe, Dr. Levendis is also available to you for questions and office hours.

Mentoring Hours: Please see Module 0 in the course's Canvas page for the latest office hours.

Location: Academic Learning and Testing Center, basement of HTML

Email: jraphael1@tulane.edu



IT'S IN THE SYLLABUS

This message brought to you by every instructor that ever lived.

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Course Description:

DATA 1010 aims to provide students with an overview to what data is, how it is used correctly and incorrectly, how it is found, stored, and managed, and how it can be used as a basis for decision making and analysis. The overall goal of this course is to increase data literacy, such that students are more confidently able to work with the increasing amounts of data in their lives, jobs, and academic careers. This course is aimed towards students in all schools and fields and has no prerequisites. (3 credit hours)

Course Goals

The main goals of this course for students are to...

1. Identify limitations of data sources, analytics employed, and their implications (e.g., factors that may affect data quality, selected samples, challenges in determining causal relationships).
2. Accurately interpret and explain information presented in graphical, figure, or table form (e.g., histograms, scatterplots, statistics tables, results tables).
3. Use some basic quantitative analysis of data (e.g., descriptive statistics) as the basis for thoughtful judgements or conclusions.
4. Summarize and represent data in graphical and table forms.
5. Recognize misleading or inappropriate representations or applications of data.

Course Learning Objectives

After completing this course, students will be able to...

1. Describe and identify numerous ways how data affects our daily lives.
2. Identify and describe ways that data is organized and shared.
3. Clean and prepare basic datasets (e.g., convert to useable file formats, remove or recode missing data, generate new categorical variables).
4. Identify data errors, missing data, and outliers and explain how they could or should be dealt with.
5. Find major data sources, such as data from the U.S. Census through data.census.gov.
6. Download and open data from various sources.
7. Identify what type of data each variable or data type is (e.g., categorical, continuous).
8. Calculate and explain basic summary statistics, such as mean, median, or mode, standard deviation, range, and number of observations.
9. Use basic summary statistics to draw inferences about the data and to answer questions using the data.
10. Determine when a mean, median, or mode would be preferred to represent the average of the data and which are useful, under different circumstances, for telling us about the average characteristics of the data.
11. Define what a population-representative sample is and what benefits it has for informing decision making relative to samples that are not population representative.
12. Describe how survey administrators conduct sampling to get a population-representative survey sample.
13. Explain the challenges of generating a population-representative sample and how population weights can help.
14. Explain why survey administrations may choose to oversample certain populations.
15. Define Type 1 and Type 2 error and how it relates to balancing “false positive” and “false negative” rates.
16. Explain how the sample size and noise in data relates to Type 1 and Type 2 error.
17. Explain to a layperson why polls and surveys that calculate probabilities or vote shares often say “19 times out of 20” or provide a range.

18. Define different types of survey structures, such as repeated cross-sections, longitudinal, and panel data.
19. Determine the appropriate figure/graph types to represent different types of data, based on the data structure (e.g., categorical).
20. Create histograms, scatterplots, and other common figures that represent data.
21. Critique existing figures that represent data, identifying ways the figure could be improved to represent the data more accurately or to more easily convey information to the reader.
22. Identify ways that nefarious researchers could mislead readers through how they construct figures, tables, or otherwise present data.
23. Identify and critique at least two misleading interpretations of data in the media, research, or in daily life.
24. Generate figures that are more readable and more accessible by following design rules around line color, type, and size choice, labeling, etc.
25. Create tables that present basic summary statistics of data.
26. Place figures and tables appropriately into documents (e.g., including titles, notes below the figure/table, and source details as appropriate).
27. Explain the difference between correlation and causation.
28. Explain the uses and misuses of correlation in data-driven decision making, policy making, and daily life.
29. Summarize a few ways that researchers attempt to estimate causal effects (i.e., how does X affect Y?), rather than just estimating correlations.
30. Describe the general idea behind regression analysis and how it can be used to study important questions using data.
31. Describe the general idea behind machine learning and how it can be used with data to study important questions.
32. Identify future possible data-focused courses, academic programs, or opportunities that may be of interest.

Core Curriculum Outcomes

This course satisfies Newcomb Tulane College’s core curriculum requirement for “[Formal Reasoning](#)”. The table below provides an explanation for how this course satisfies the objectives of the “Formal Reasoning” requirement by relating the objectives with the above numbered course learning objectives.

Objective Number	Objective Description	Related Course Learning Objectives*
1	Formulates appropriate questions and propositions for quantitative analysis.	9, 10, 11, 23, 27, 28, 29
2	Uses the quantitative analysis of data to draw appropriate conclusions.	1, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29
3	Demonstrates the ability to assess the validity and limitations of quantitative models.	10, 11, 15, 16, 17, 18, 19, 21, 22, 23, 27, 30, 31

*Note: numerous course learning objectives are stepping stones to later ones that directly relate to the formal reasoning objectives. E.g., the course learning objectives related to collecting, finding, downloading, cleaning, or preparing data (e.g., 2, 3, 4, 5, 6) are required for the course learning objectives listed above that strongly relate to formal reasoning objective 2. Similarly, numerous course learning objectives relate to assessing the validity and limitations of data (e.g., 10, 11, 17, 18) which naturally relates to “limitations of quantitative models” (formal reasoning objective 3) since the data forms a crucial part of the quantitative model and informs which quantitative model is used.

Required Course Materials:

- Textbook: <https://open.umn.edu/opentextbooks/textbooks/introductory-statistics>
- Microsoft Excel 365, available free to all Tulane students

Criteria for Assigning Course Grade:

There are four equally weighted components to the class: two mid-term exams, one cumulative final exam, and a graded HW component. Your grade for the course will be calculated as an equally weighted average of these four components, minus deductions for missing class. You can calculate your average in Excel using the following:

	A	B	C	D
1	Item	Weight	Your Score	Weight x Your Score
2	HW avg	0.25	_____	=B2*C2
3	Midterm 1	0.25	_____	=B3*C3
4	Midterm 2	0.25	_____	=B4*C4
5	Final Exam	0.25	_____	=B5*C5
6	Initial Average			=sum(D2:D5)
7	# of Unexcused Absences over four =			_____
8	Your final grade in the class =			=D6-5*D7

I drop your lowest four HW assignments.

I reserve the right to round edge cases (e.g., 79.96%) either up or down at my sole discretion.

Attendance:

Attendance is **required and graded**. You are allowed **four** unexcused absences (think of these as personal days or sick days not requiring a doctor’s note); these absences won’t affect your grade. You also have an unlimited number of excused absences provided these originate with Student Affairs, the Athletics Department, or the Goldman Center for Student Accessibility. After this, **each unexcused absence results in a deduction of 5 points off your final class average**. (Canvas can’t calculate this deduction, so it won’t show up in your gradebook. I’ll assess it at the end of the course.) To be marked as “attending” you must be on time for class.

With the approval of the Newcomb – Tulane College dean, I may have a student who has excessive absences involuntarily withdrawn from a course with a WF grade after written warning at any time during the semester. Students do not need to notify me to justify why they missed class, but students should check in with me if their absences affect a major grading event.

Homework (aka Quizzes):

Graded HW will be assigned throughout the course, and submitted via Canvas. **There are no extensions, and late assignments are not accepted.**

You have until midnight (actually, 11:59pm central time) on Sunday to view the videos and complete the week’s HWs. You can retake them as many times as you wish, and I’ll keep your highest score. Please don’t put your HW off to the last minute; Murphy’s Law always seems to find a way to mess with the best laid plans, and there are **no extensions on late HWs/Quizzes.**

Grading scale:

Grade	Percent
A	100%to93%
A-	< 93%to90%
B+	< 90%to87%
B	< 87%to83%
B-	< 83%to80%
C+	< 80%to77%
C	< 77%to73%
C-	< 73%to70%
D+	< 70%to67%
D	< 67%to63%
D-	< 63%to60%
F	< 60%to0%

Canvas grades vs official Gibson grades

Canvas helps you keep track of your grades on individual assignments. You may find Canvas' total column does not match your final grade on Gibson. Gibson is always the official register of grades. In short, you should calculate your own class average, rather than rely on Canvas' flawed calculations. (According to Canvas, $1/3 + 1/4 = 2/7$. This is wrong. Horribly wrong.)

Extensions and Accommodations:

I regularly get emails from students asking for HW/quiz extensions. I am legally and ethically obligated to treat each student equally, so I cannot make special exceptions.

I do, however, give all of my students' ample time to complete their HWs/quizzes (usually 5-7 days). This extended time table is in place so that you can plan around family obligations, scheduled meetings, sporting events, and (more importantly) unscheduled emergencies (computers crashing, roommate emergencies, etc.). Inevitably, "life happens" and an emergency occurs. Knowing that these things may happen, it is up to you to take advantage of the extended time table and complete your work as early as possible.

There are a couple of exceptions to this rule; but requests for accommodation, flexibility, or excusal must follow the proper procedures:

Tulane University is committed to offering classes that are accessible. If you anticipate or encounter **disability-related barriers** in a course, please contact the **Goldman Center for Student Accessibility** to establish reasonable accommodations. If approved by Goldman, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. I will never ask for medical documentation from you to support potential accommodation needs. Goldman Center contact information: Email: goldman@tulane.edu; Phone (504) 862-8433; Website: accessibility.tulane.edu

Unless I am specifically instructed by the Goldman Center for Student Accessibility, I do not grant extensions or make-ups. A missed assignment or exam without an excused absence earns a grade of zero.



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Tentative Schedule: This calendar will probably change.

Week of	Topic
Jan 12 – Jan 8	Module 0 – Intro
Jan 19 – Jan 25	Module 1 – Data Types, Graphing, Pivot Tables
Jan 26 – Feb 1	Module 2 – Descriptive Statistics
Feb 2 – Feb 8	Module 3 – Relative Position and the “Empirical Rule”
Feb 9 – Feb 15	Module 4 – Qualitative and Textual data Midterm 1 (in class, on Modules 1-4)
Feb 16 – Feb 22	Mardi Gras Break Module 5 – Data Cleaning
Feb 23 – March 1	Module 6 - Sampling and Survey Construction
March 2 – March 8	Module 7 – Normal distribution
March 9 – March 15	Module 8 – Sampling Distributions and the CLT
March 16 – March 22	Midterm 2 (online, take-home, on Modules 5-8)
March 23 – March 29	Spring Break
March 30 – April 5	Module 9 – Confidence Intervals
April 6 – April 12	Module 10 – Hypothesis Tests (1 sample)
April 13 – April 19	Module 11 – Hypothesis Tests (2 sample)
April 20 – April 26	Module 12 – Correlation and Regression
April 28	CUMULATIVE FINAL EXAM

Additional Expectations:

Civility: Please be civil in all interactions with your classmates and instructors. Classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of students to benefit from the instruction is not acceptable. Examples may include routinely entering class late or departing early; talking while others are speaking; or arguing in a way that is perceived as “crossing the line of civility.”

Lateness: If you are habitually late to class, you will be asked to leave and you will be marked as absent.

Email: I communicate with the class via Canvas email. Please make sure that your email address as listed in Canvas is correct, and that you **monitor your emails regularly**.

Code of Academic Conduct

The Code of Academic Conduct applies to all Newcomb-Tulane College students at Tulane University. Students enrolled in the School of Professional Advancement (SoPA) have a separate Code. Tulane University expects and requires behavior compatible with its high standards of scholarship. By accepting admission to the university, a student accepts its regulations (i.e., [Code of Academic Conduct](#), [Code of Student Conduct](#) and [Code of Integrity](#)) and acknowledges the right of the university to take action, including suspension or expulsion, for conduct judged unsatisfactory or disruptive. [School of Professional Advancement Code of Academic conduct](#)



Unless I indicate differently on instructions, all assignments and exams are to be completed individually and without any study aid, including textbooks, class notes, or online sites. If you have any question about whether a resource is acceptable, you must ask the instructor rather than assume.

AI Statement

In this course, the use of artificial intelligence (AI) tools such as Grammarly, ChatGPT, Claude, DALL-E, or any other automated content generators is strictly prohibited. All assignments must be completed independently by the student, and any submission found to have been generated by AI will be treated as a violation of the academic integrity policy. This includes using AI as an idea generation tool. The development of your analytical and writing skills is a core component of this course, and reliance on AI tools undermines this learning process.

Welcoming Community Statement

Tulane's core value of "welcoming community" means that we cultivate classrooms and other learning spaces where students, faculty, and staff **across the broadest array of backgrounds, experiences, and perspectives** can thrive and reach their full potential. In this classroom, we encourage and empower you to participate in building this supportive environment for every member of our community, which requires practicing **humility** when **engaging across differences** and **acknowledging** the perspectives of people who may have divergent or similar viewpoints. Please **read the expectations set forth in the Tulane University [Student Code of Student Conduct](#) and Tulane's [Antidiscrimination Statement](#).**

Religious Accommodation Policy

Per Tulane’s religious accommodation policy as stated at the bottom [Tulane’s academic calendar](#), I will make every reasonable effort to ensure that students are able to observe religious holidays without jeopardizing their ability to fulfill their academic obligations. Excused absences do not relieve the student from the responsibility for any course work required during the period of absence. Students should notify me within the first two weeks of the semester about their intent to observe any holidays that fall on a class day or on the day of the final exam.

Title IX

Tulane University recognizes the inherent dignity of all individuals and promotes respect for all people. As such, Tulane is committed to providing an environment free of all forms of discrimination including sexual and gender-based discrimination, harassment, and violence like sexual assault, intimate partner violence, and stalking. If you (or someone you know) has experienced or is experiencing these types of behaviors, know that you are not alone. Resources and support are available: you can learn more at allin.tulane.edu.

Disclosures of gender-based discrimination

To comply with the requirements of Title IX of the Education Amendments of 1972, Tulane University requires all faculty members to report incidents of gender-based discrimination. Please know that if you choose to confide in me, I am required by the university to share your disclosure in a Care Connection to the Office of Case Management and Victim Support Services to be sure you are connected with all the support the university can offer. The Title IX Coordinator is also notified of these disclosures. You choose whether or not you want to meet with these offices. You can also make a disclosure yourself, including an anonymous report, through the form at tulane.edu/concerns.

Statement on Confidentiality and Privacy

Tulane University is committed to protecting the privacy of all individuals involved in a disclosure of gender-based discrimination. Any and all of your communications on these matters will be treated as either “Confidential” or “Private.”

Confidential	Private
<p><i>Except in extreme circumstances, involving imminent danger to one’s self or others, nothing will be shared without your explicit permission.</i></p> <ul style="list-style-type: none">▪ Counseling & Psychiatric Services (CAPS) (504) 314-2277▪ The Line (24/7) (504) 264-6074	<p><i>Conversations are kept as confidential as possible, but information is shared with key staff members so the University can offer resources and accommodations and take action if necessary for safety reasons.</i></p> <ul style="list-style-type: none">▪ Case Management & Victim Support Services (504) 314-2160 or srss@tulane.edu

<ul style="list-style-type: none"> ▪ Student Health Center (504) 865-5255 ▪ Sexual Aggression Peer Hotline and Education (SAPHE) (504) 654-9543 	<ul style="list-style-type: none"> ▪ Tulane University Police (TUPD) Uptown - (504) 865-5911 Downtown – (504) 988-5531 ▪ Title IX Office & Title IX Coordinator (504) 865-5611 or titleix@tulane.edu ▪ Student Affairs Professional On-Call (24/7) (504) 920-9900
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Title IX Safeguards for Pregnant and Parenting Students

Title IX also provides reasonable protections and support for pregnant and parenting students. Discrimination on the basis of a student’s pregnancy, childbirth, false pregnancy, termination of pregnancy, or recovery from any of the previous conditions is prohibited by Title IX, and Tulane is committed to providing equal access to academic programs and extracurricular activities to students who might be, are, or have been pregnant. If you need support related to a pregnancy or any of the previously listed conditions, visit pregnancy.tulane.edu for more information, including a list of resources. Student who believe that they may have experienced pregnancy discrimination can file a complaint with the Title IX Office by contacting 504-865-5611 or titleix@tulane.edu, visiting the office in Jones Hall 308, or filing a report at Tulane.edu/concerns.

Emergency Preparedness & Response

EMERGENCY NOTIFICATIONS: TU ALERT	SEVERE WEATHER
<p>In the event of a campus emergency, Tulane University will notify students, faculty, and staff by email, text, and/or phone call. You were automatically enrolled in this system when you enrolled at the university.</p> <p>Check your contact information annually in Gibson Online to confirm its accuracy.</p>	<ul style="list-style-type: none"> ▪ Follow all TU Alerts and outdoor warning sirens ▪ Seek shelter indoors until the severe weather threat has passed and an all-clear message is given ▪ Do not use elevators ▪ Do not attempt to travel outside if weather is severe <p>Monitor the Tulane Emergency website (tulane.edu/emergency/) for university-wide closures during a severe weather event</p>
ACTIVE SHOOTER / VIOLENT ATTACKER	EVERBRIDGE APP
<ul style="list-style-type: none"> ▪ RUN – run away from or avoid the affected area, if possible ▪ HIDE – go into the nearest room that can be locked, turn out the lights, and remain hidden until all-clear message is given through TU ALERT ▪ FIGHT – do not attempt this option, except as a last resort 	<ul style="list-style-type: none"> ▪ Download the Everbridge app from the App Store or Google Play store ▪ The Report feature allows you to silently and discreetly communicate with TUPD dispatchers ▪ The SOS button allows you to notify TUPD if you need help

- For more information or to schedule a training, visit emergencyprep.tulane.edu

- The Safe Corridor button serves as a virtual escort and allows you to send check-in notifications to TUPD

From: Tulane Office of Emergency Preparedness and Response

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