

Data Analytics and Management

Unique Number: 60145

FALL 2024

Class Meets: Thursdays, 9:00 AM – 12:00 PM, SRH 3.214

Instructor: Dr. Gordon Abner

Pronouns: He/Him/His

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Office: SRH 3.255

Office Hours: Monday 10am to 11am and by appointment

<https://utexas.zoom.us/j/97813501362>

Please always send me an e-mail if you plan to come to office hours.

COURSE DESCRIPTION

What will I learn?

In today's data-driven world, performance metrics are increasingly integral to strategic decision-making across all sectors. This course provides a comprehensive exploration of how to effectively design, visualize, and report performance metrics to develop insights and enhance organizational outcomes. We will address both the potential benefits and risks associated with performance metrics, highlighting their transformative power while also acknowledging the significant problems they can create.

A core component of the course is practical training in Power BI, a leading tool for data analysis and visualization. With guidance from the professor, students will identify and download data on performance metrics from an organization of their choosing and use that data as their case study for the semester. Students can either work in pairs or solo it is their choice. You will gain experience in cleaning and transforming data, creating compelling visualizations, and designing interactive dashboards that facilitate data-driven decision-making. Class sessions will generally feature a lecture, in-class software time, and mini-presentations from students. No prior experience with Power BI is necessary.

Learning Outcomes

After successfully completing this course, students will be better equipped to:

1. Identify the potential benefits and risks of performance metrics
2. Develop key performance indicators
3. Match data with the appropriate visualization
4. Utilize Power BI to clean data and create visualizations and dashboards

COURSE REQUIREMENTS

Required Materials

You are not required to purchase textbooks for this course. Class materials, supplemental resources, grades, and announcements will be posted on the course Canvas site: <https://utexas.instructure.com>. I recommend bookmarking this course site in your default browser for easy access.

You will need to bring a laptop to class every class period, as software demonstrations will be conducted during class sessions. Power BI is free to download.

Sharing of Course Materials is Prohibited

No materials used in this class, including, but not limited to, lecture hand-outs, videos, assessments (quizzes, exams, papers, projects, homework assignments), in-class materials, review sheets, and additional problem sets, may be shared online or with anyone outside of the class without explicit, written permission of the instructor.

Confidentiality of Class Recordings

Class recordings are reserved only for students in this class for educational purposes and are protected under FERPA. The recordings should not be shared outside the class in any form. Violation of this restriction by a student could lead to Student Misconduct proceedings.

Artificial Intelligence

The creation of artificial intelligence tools for widespread use is an exciting innovation. Using AI writing tools without my permission or authorization, shall constitute a violation of UT Austin's Institutional Rules on academic integrity. If you are considering the use of AI writing tools but are unsure if you are allowed or the extent to which they may be utilized appropriately, please ask.

Academic Integrity Expectations

Students who violate University rules on academic misconduct are subject to the student conduct process. A student found responsible for academic misconduct may be assigned both a status sanction and a grade impact for the course. The grade impact could range from a zero on the assignment in question up to a failing grade in the course. A status sanction can include a written warning, probation, deferred suspension or dismissal from the University. To learn more about academic integrity standards, tips for avoiding a potential academic misconduct violation, and the overall conduct process, please visit the Student Conduct and Academic Integrity website at: <http://deanofstudents.utexas.edu/conduct>.

Assignments

Assessment of your learning will occur through a variety of venues including class participation and engagement, mini presentations, midterm and end of term exams, and a final presentation.

1. Class Participation and Engagement

This course requires active participation. The more you put into it, the more you will get out of it. To get full points for class participation and engagement, you must do the following:

- (1) Attend every class session. You have one excused absence. If you have absences after the excused absence, you will not receive credit for class participation for those days.
- (2) Arrive on time. If you are late, you will receive a 20% reduction in class participation for that day.
- (2) Stay for the entire class
- (3) Read the assigned material prior to class
- (4) Fully participate in class discussions, exercises, and group activities
- (5) Upload the work you completed during class at the end of class to Canvas. You have until 15 minutes after class has ended to upload your work. If you do not upload your work in time, you will not receive credit for participation that day.

(14% of your grade)

2. Mini Presentations

You will conduct seven mini presentations over the course of the semester. For the mini presentations you will deliver a concise 5-minute PowerPoint presentation that showcases your data or a visualization of your data, depending on the week. During your mini presentation you will explain your data or visualization and describe how you have applied insights from the weekly reading to cultivate your data or visualization. If you choose to work in a pair, you will present with your partner.

(28% of your grade)

3. Midterm

You will complete an open book and open note take home midterm. The midterm will be in the form of essay questions.

(20% of your grade)

4. End of Term Exam

You will complete an open book and open note take home end of term exam. The exam will cover material from the second half of the course. The midterm will be in the form of essay questions.

(16% of your grade)

5. Final Presentation

Your final presentation will be in the form of a dashboard created in Power BI and will be the culmination of the mini presentations that you completed throughout the semester.

(22% of your grade)

Grading for this Course

Mini-Presentations (7)	28%
Class Participation and Engagement	14%
Midterm	20%
Quiz	16%
Final Presentation	22%

Grading Policy

Grade	Cutoff
A	94%
A-	90%
B+	87%
B	84%
B-	80%
C+	77%
C	74%
C-	70%
D	65%
F	<65%

Accommodation for Religious Holidays

According to UT-Austin policy, students must notify the professor of his/her/their pending absence at least 14 days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment or a project to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Late work

Your grade will be reduced by 10 points for the assignment for each 24-hour period that it is late. I will not accept assignments that are submitted more than 48 hours after the due date.

Senate Bill 212

Texas Senate Bill 212 requires all employees of Texas universities, including faculty, to report any information to the Title IX Office regarding sexual harassment, sexual assault, dating violence and stalking that is disclosed to them. Texas law requires that all employees who witness or receive any information of this type [including, but not limited to, in written forms, applications and class assignments] must report said information.

Mental Health

I want to encourage students who are struggling for any reason and who believe that it might impact their performance in the course to reach out to me if they feel comfortable. This will allow me to provide any resources or accommodations that I can. If immediate mental health assistance is needed, call the Counseling and Mental Health Center [CMHC] at 512-471-3515. You may also contact Bryce Moffett, LCSW [LBJ CARE counselor], at 512-232-4449 or stop by during her office hours: Wednesday 1-2 p.m., SRH 3.119. Outside CMHC business hours [8 a.m.–5 p.m., Monday-Friday], contact the CMHC 24/7 Crisis Line at 512-471-2255.

Disability Access

Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities.

Course Schedule

Changes to the schedule may be made at my discretion and if circumstances require. It is your responsibility to note these changes when announced (although I will do my best to ensure that you receive the changes with as much advanced notice as possible).

<u>Week</u>	<u>Date</u>	<u>Topic</u>	<u>Reading</u>	<u>Assignment</u>
Week 1	August 29th	The Dangers of an Obsession with Metrics Pt. 1/2	Chapters 1, 2, 7, and 8 from The Tyranny of Metrics (short chapters)	
Week 2	September 5th	The Dangers of an Obsession with Metrics Pt. 2/2	Chapters 9, 10, 11, 12, 13, and 14 from The Tyranny of Metrics (short chapters)	
Week 3	September 12th	Getting Started with Power BI	Watch videos posted to Canvas	
Week 4	September 19th	How People Make Sense of Metrics Pt. 1/2	Chapters 2, 3, 4, 5 from Behavioral Public Performance (short chapters)	Mini Presentation - Presenting Your Data (9am to Canvas)
Week 5	September 26th	How People Make Sense of Metrics Pt. 2/2	Chapters 6, 7, 8, 9 from Behavioral Public Performance (short chapters)	Mini Presentation - Initial Visualizations (9am to Canvas)
Week 6	October 3rd	Midterm	No Reading Study Time	Midterm (12pm to Canvas)

Week 7	October 10th	Tables	Chapters 2 and 11 from Better Data Visualizations	
Week 8	October 17th	Charts for Comparing Categories	Chapter 4 from Better Data Visualizations	Mini Presentation - Tables (9am to Canvas)
Week 9	October 24th	Charts for Time Series Data	Chapter 5 from Better Data Visualizations	Mini Presentation - Comparing Categories (9am to Canvas)
Week 10	October 31st	Charts for Geospatial Data	Chapter 7 from Better Data Visualizations	Mini Presentation - Time (9am to Canvas)
Week 11	November 7th	Charts for Part-to-Whole Comparisons	Chapter 9 from Better Data Visualizations	Mini Presentation - Geospatial (9am to Canvas)
Week 12	November 14th	Dashboards / Advanced Methods	Read Development of a usability checklist	Mini Presentation - Part-to-Whole (9am to Canvas)
Week 13	November 21st	Final Presentation - Prep	No Reading Prep Time	End of Term Exam (9am to Canvas)
Week 14	December 5th	Final Presentation	No Reading Prep Time	Final Presentation (9am to Canvas)