MIS2502 Data and Analytics – Spring 2026
Section 701, CRN 19396
Thursdays 5:30 – 8:00 PM

MIS Community Site: https://community.mis.temple.edu/mis2502sec701spring2026/
Canvas Course: https://templeu.instructure.com/courses/165357
Zoom Classroom: https://temple.zoom.us/j/94750921944

Instructor:	Information Technology Assistant:
Jaclyn M. Hansberry E-mail: Jaclyn.hansberry@temple.edu Office Hours: **Friday 11:00 am – 12:00 pm** **Or By appointment via Zoom**	Andrew Tam Email: andrew.tam@temple.edu

Prerequisites:
Grade of C or better in MIS2101.

Course Description:
The course provides a foundation for designing database systems and analyzing business data to enhance firm competitiveness. Concepts introduced in this course aim to develop an understanding of the different types of business data, various analytical approaches, and the application of these approaches to solve business problems. Students will have hands-on experience with current, cutting-edge tools such as MySQL and Python.

Course Objectives:
- Articulate the key components of an organization's information infrastructure.
- Understand and use a transactional database from a model based on both SQL and NoSQL.
- Create an analytical data store by extracting relevant data from a transactional database.
- Perform extract, transform, and load (ETL) functions such as data sourcing, pre-processing, and cleansing.
- Discover trends in analytical data stores using the data mining techniques of clustering, segmentation, association, and decision trees.
- Present data visually for clear communication to a managerial audience.

Required Textbook:
There is no required textbook for this course.

Course Websites:

We will use both the MIS community site and the Canvas site. The detailed usage of the two sites is as follows.

Website	Usage
MIS Community Site: https://community.mis.temple.edu/mis2502sec701spring2026/	The community site has an up-to-date copy of the syllabus, schedule, class announcements, links to slide decks, In-class activities, assignment instructions, as well as other course documents. The community site should be checked regularly.
Canvas: https://templeu.instructure.com/courses/165357	The Canvas site is primarily for assignment submissions and Exams.

Evaluation and Grading:

Item	Percentage
Exams (3)	60%
Assignments (9)	35%
In-class activities	5%

Scale			
94 – 100	A	73 – 76.99	C
90 – 93.99	A-	70 – 72.99	C-
87 – 89.99	B+	67 – 69.99	D+
83 – 86.99	B	63 – 66.99	D
80 – 82.99	B-	60 – 62.99	D-
77 – 79.99	C+	Below 60	F

Exams

There will be three exams during the semester. The dates of these are documented in the class schedule. There will be no impromptu ('pop') quizzes or exams. Exams will be given via Canvas using Proctorio proctoring software.

Makeup Exams

Makeup exams present several logistical challenges. Out of fairness to all students taking the course, makeup examinations will only be given in accordance with the official University policy. Exceptions are granted at the instructor's discretion and are typically limited to extreme circumstances such as documented hospitalization. If a student is permitted to take a make-up exam, the instructor reserves the right to substitute an alternate exam with different content. Students may find the content of the

make-up exam to be more difficult than the original. It is, therefore, to a student's advantage to show up for each exam at the scheduled time and take it with the rest of the class.

Assignments

There will be nine assignments. All assignments should be submitted via Canvas before the due date. They are to be done individually and should represent your own work. If you need help, you may consult with your instructor or the GTA/ITA for the course.

#	Assignment
1	Database Schema
2	SQL #1 – Basic queries
3	SQL #2 – Advanced queries
4	Python Basics
5	Python and JSON
6	Python and Pandas
7	Decision Trees
8	Clustering
9	Association Rules

Late Assignment Policy

All assignments will be assessed a 20% penalty (subtracted from that assignment's score) for every day they are late. This means no credit will be given for assignments turned in more than 4 days past the deadline.

Please note:

- Equipment failure is not an acceptable reason for turning in an assignment late.
- In case the Canvas submission link does not work, you must send the submission to the instructor's email by the due date.
- For the assignment to be considered "on time," you must attach all necessary files specified in the assignment instructions by the due date. For any revisions or additional documents received after the due date, the usual late penalty applies.

Regrade Requests

The instructor will make every effort to return exam/assignment grades within 1 week of submission. If you believe that your grade is inaccurate, you may request a regrade under the following conditions:

1. Regrade requests must be submitted within 1 week of the date when the grade was returned.
2. For assignment and ICAs grades, regrade requests must be emailed to the instructor or TA and must outline the reasons you deserve a higher grade. Referencing another student's grade is inappropriate and irrelevant. While we do our best to apply an even standard across students, we can't discuss anyone else's grade with you, so we need to deal with the merits of your case.
3. For exam grades, regrade requests must be made during office hours.
4. I reserve the right to regrade the entire assignment/project/exam, and thus your grade may go up or down.

In-Class Activities
In-class activities are very hands-on in nature, where students will be expected to work with various examples and data sets based on instructions and class discussions. After we complete the in-class activities, you are required to submit your solutions through Canvas by 11pm after class unless otherwise notified.

You are allowed to miss two submissions for in-class activities. Deliverables from in-class activities will be graded by success or failure. Missed or late submissions will receive a zero (fail) grade. Equipment failure is not an acceptable reason for turning in a deliverable late.

Extra Credit:
Extra credit opportunities will not be offered to compensate for poor academic performance earlier in the semester.

Attendance and Participation:
Attendance and participation are essential. I strongly encourage your active class participation and discussion. Involvement during class is also important. Being present in class to ask and answer questions is essential to the learning process. Don't feel shy to speak up, ask questions, or answer them. All students are expected to come prepared for the class and volunteer answers. I may also "cold call" students in class.

An important note regarding attendance: if a student does miss class, it is the student's responsibility to catch up on any related material. While every student is encouraged to use office hours to gain a better understanding of class material, office hours are NOT for helping students catch up on material they missed because they were absent.

Laptop Requirement
- The software that we use in the course works on Windows and MacOS. Students should have a laptop to follow the course materials (e.g., ICAs). The proctoring tool used for exams does not work via Safari – this browser should not be used by Mac users.
- Chromebooks are not considered as laptops as they are a Google tablet/device.https://its.temple.edu/shoppers-guide
- Limited resources are available for students who do not have the technology they need for class. Students with educational technology needs, including no computer or camera or insufficient Wifi-access, should submit a request outlining their needs using the Student Emergency Aid Fund form. The University will endeavor to meet needs, such as with a long-term loan of a laptop or Mifi device, a refurbished computer, or subsidized internet access.

Academic Integrity
The MIS Department has a **zero-tolerance** policy for any type of academic dishonesty in the classroom. Academic dishonesty refers to any form of cheating, plagiarism, or other unethical practices in academic settings. This includes, but is not limited to, the following:

A. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling or distribution of term papers or other academic materials.
B. Cheating includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations; (2) use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (3) the acquisition, without permission, of tests or other academic material belonging to a member of the university faculty or staff; (4) engaging in any behavior specifically prohibited by a faculty member in the course syllabus, assignment, or class discussion; (5) or otherwise engaging in behavior that gives the Student an unfair academic advantage including, but not limited to, fabrication of data or sources, resubmitting work already submitted for another academic requirement without prior authorization, or other similar behavior.
C. Facilitating, procuring, or encouraging another person to engage in plagiarism or cheating.

To be clear, the following are unacceptable:

- Copying material directly from the Internet (or another source) without a proper citation crediting the author.
- Posting material to the Internet so that it can be used by other students who are violating this academic integrity policy (i.e. posting exam material or assignment material to Course Hero).
- Turning in an assignment from a previous semester as if it were your own and created during the current semester.
- Having someone else complete your assignment and submitting it as if it were your own.
- Fraudulently updating the attendance record.
- Use of assignments completed in one class as any part of a project assigned in another class.
- Sharing/copying any graded assignment.
- Use of any unauthorized information during an examination.

In cases of cheating where multiple parties are involved, all parties will be held **equally responsible**. Under this zero-tolerance policy, any student found violating the academic integrity policy will immediately receive a final grade of "F" for the course and a formal complaint will immediately be filed with Office of Student Conduct and Community Standards. This incident will be listed on your permanent academic record. As part of my formal complaint, I will petition to have you expelled from the university. I will not discuss the penalty for violating this policy; I will simply direct you to this paragraph in the class syllabus.

** As outlined in the university's Withdrawal from Classes policy (policy no. 02.10.14), once a student has been informed that academic misconduct is suspected, the student may not drop or withdraw

from the course during the investigation and adjudication process except where the drop or withdrawal is approved for exceptional circumstances.
https://studentconduct.temple.edu/

Student and Faculty Academic Rights and Responsibilities
The University has adopted a policy on Student and Faculty Academic Rights and Responsibilities (Policy # 03.70.02), which can be accessed through the following link:
http://policies.temple.edu/getdoc.asp?policy_no=03.70.02

Disability Statement
Any student who has a need for accommodation based on the impact of a disability should contact me privately to discuss the specific situation as soon as possible. Contact Temple University's Disability Resources and Services (DRS) office at (215)204-1280 at 100 Ritter Annex to coordinate accommodations for students with documented disabilities. Please contact your instructor and the DRS within the first week of class, at the beginning of the semester. DRS will establish your needs and make necessary arrangements with the faculty. If you choose not to contact DRS and have difficulty, you will be unable to receive accommodations retroactively, once exams are completed and/or course grades are submitted. Such decisions are made jointly between the DRS office and the instructor, at their discretion based on circumstances. Accommodation letters must be received by the instructor during the first two weeks of the semester.

Class Recordings
Class meetings will be recorded and posted via Canvas upon request. Any student who is not comfortable with this and/or has any related privacy concerns should contact the instructor.

Any recordings permitted in this class can only be used for the student's personal educational use. Students are not permitted to copy, publish, or redistribute audio or video recordings of any portion of the class session to individuals who are not students in the course or academic program without the express permission of the faculty member and of any students who are recorded. Distribution without permission may be a violation of educational privacy law, known as FERPA as well as certain copyright laws. Any recordings made by the instructor or university of this course are the property of Temple University.

MIS Department PRO Points Requirement
The MIS Department has instituted a PRO point (professional achievement point) requirement for all MIS majors. This class is a checkpoint to ensure that students are focused on this requirement and on track to earn their 1,000 points by graduation. Students in MIS2402 must earn a minimum of 200 points by the end of the semester. Students who fail to earn the required points will receive an "Incomplete" for this course regardless of performance on exams or class participation.

IMPORTANT NOTE: If a student fails to earn the minimum number of PRO points within one year from the end of the semester or does not notify their instructor that they have earned the minimum number of points, then their "Incomplete" will be changed to an "F" automatically. The grade of "F" will then be the student's permanent grade.

Students are **STRONGLY** encouraged to, at a minimum, do the following to earn points:

1. Create an e-Portfolio and have it listed with the department.
2. Become an active member of AIS and participate in professional development activities.
3. Attend the IT Awards Reception (spring semester only).
4. Participate in the Data Analytics Challenge (fall semester only) and the MIS Department's Career Fair.
5. Volunteer your time for department-sponsored events.
6. Discuss opportunities to earn MIS PRO points for projects with your MIS instructors. Note that students may not request course/project-related PRO points more than one year after the end of the semester.

Finally, here are two excellent resources that describe why the MIS professional achievement points are important to you.

1. http://community.mis.temple.edu/current-students/professionalachievement
2. http://community.mis.temple.edu/store

Class Schedule

The tentative schedule for the topics is presented below. You are expected to review the assigned material for each class. Additional supplementary material may be assigned throughout the course of the semester. Please get into the habit of checking the community site before each class to make sure you get the most out of class time.

Day	Topics	Course Materials	Assignments
	Week 1		
Jan. 15	Course Introduction and Syllabus The Things You Can Do with Data. The Information Architecture of an Organization	PowerPoint: The Things You Can Do with Data Information Architecture	
	Understanding Database Schemas: Normalization, primary/foreign keys, joins	PowerPoint: Relational Data Modeling	
	Week 2		
Jan. 22	**In-class exercise #01: Creating database schema in MySQL Workbench**		
	Getting data out of RDMS: SQL SELECT, DISTINCT MIN, MAX, COUNT, and WHERE *Make sure you've reviewed the guide for setting up a connection in MySQL Workbench*	PowerPoint: SQL 1	
	Week 3		
Jan. 29	**In-class exercise #02: Pen and Paper exercise**		Assignment 1 Due: Database schema
	Getting data out of RDMS: Joining tables	PowerPoint: SQL 2	
	Week 4		

Feb. 5	**In-class exercise #03: Working with SQL, part 1**		Assignment 2 Due: SQL #1
	In-class exercise #04: Working with SQL, part 2		
Week 5			
Feb. 12	Review for Exam 1		Assignment 3 Due: SQL #2
	Exam 1		
Week 6			
Feb. 19	Introduction to Python **In-class exercise #05: Getting familiar with Jupyter, Python Basic, Data types**	PowerPoint: Introduction to Python	
	Python Data Structures **In-class exercise #06: Python Lists and Dictionaries**		
Week 7			
Feb. 26	Semi-structured data **In-class exercise #07: Working with semi-structured data**	PowerPoint: Semi-structured data	Assignment 4 Due: Python Basics
	Python and JSON **In-class exercise #08: Working with JSON in Python**		
Week 8			
Spring Break – No Class			
Week 9			
Mar. 12	Python Pandas **In-class exercise #09: Working with Python Pandas**		Assignment 5 Due: Python and JSON
	Reconciling Data: The extract, transform, load process (ETL) **In-class exercise #10: More Practice with Pandas**	PowerPoint: ETL	
Week 10			
Mar. 19	Principles of Data Visualization **In-class exercise #11: Data Visualization**	PowerPoint: Data Visualization	Assignment 6 Due: Pandas
	Hypothesis Testing **In-class exercise #12: Hypothesis Testing and Visualization in Python**		
Week 11			
Mar. 26	Review for Exam 2		
	Exam 2		
Week 12			

Apr. 2	Introduction to Advanced Analytics Classification using Decision Trees	PowerPoint: Advanced Analytics – Introduction PowerPoint: Classification using Decision Trees	
	In-class exercise #13: Decision trees in Python		
Week 13			
Apr. 9	*Analysis Scenario: Identifying similar customers (clustering and segmentation)*	*PowerPoint: Clustering and Segmentation*	
	In-class exercise #14: Clustering and Segmentation in Python		*Assignment 7 Due: Decision Trees*
Week 14			
Apr. 16	Analysis Scenario: What products are purchased together? (Association Rules) **In-class exercise #15: Computing Confidence, Support, and Lift**	*PowerPoint: Association Rule Mining*	*Assignment 8 Due: Clustering*
	In-class exercise #16: Association Rule Mining in Python		
Week 15			
Apr. 23	Review for Exam 3		Assignment 9 Due: Association Rules
	Exam 3 – Final Exam 4/30 5:45 – 7:45 via Canvas		