

MIS 381N Intro. to Database Management

Fall 2021



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Unique Number(s) 04545 04550	Class Time MW 3:30 - 5:00 pm TTH 2:00 - 3:30 pm	Classroom GSB 3.130 GSB 3.130

Information:

Course Description

Data is the new fuel powering organizations to exponential growth, ruthless operational efficiency, unparalleled customer intimacy and breakthrough product development. Business models ranging from Netflix, Amazon, Facebook, and Google, to name a few, depend on the extraction of insights from massive quantities of data. This course will help you understand the strategic options that are available to a business for data management to drive business insights and how these strategic options lead to technologies for relational database management for structured data and technologies such as Hadoop, MapReduce and Spark for unstructured schema less data (Big Data). This course will also help you understand principles of Data Governance and Enterprise Data Architecture.

Students who take this course can expect the following learning outcomes and gained skills:

- The important role data plays within an organization in today's digital world
- How to design and model a traditional relational database
- How to query, analyze, and manipulate data in a database using SQL
- Understand the evolution and use of database technologies beyond SQL
- Understand concepts behind building data warehouse and big data
- Gain working knowledge in Big Data storage processing (MapReduce, Hadoop, and Spark)

Course Materials

Required Textbook: Murach's Oracle SQL and PL/SQL for Developers (2nd Edition)

Author: Joel Murach

Publisher: Mike Murach & Associates

ISBN-13: 978-1890774806

A personal computer with required software installed

Other materials outside of the textbook will be provided for free on Canvas. Class Slides will also be available through Canvas

Required Software

No software needs to be purchased for this class.
All software is free online.

- **Database/Programming software:**
 - **SQL Developer** - You will need to download the Oracle client application (SQL Developer) to your own computer. Windows, Mac, & Linux versions of the client app are available for free online. Details about the Oracle client download/install process will be provided when we get to that portion of the semester. The [Swat Shop](#) (GSB 3.132) can help if you experience any problems installing the Oracle client.
- **Modeling software:** You'll also need to use modeling software. We recommend [Lucidchart](#) or Microsoft Visio. NOTE: Lucidchart works for either Mac or PC and is a SaaS product requiring no download/install. Visio is fine if you already have it or prefer it. Visio is downloadable for free through the [McCombs Software wiki](#) but we recommend **Lucidchart**
- **Programming software:** You will need to install Python if you do not already have it installed. Additional packages will need to be installed, and instructions will be posted well before that software is required. We will be using Amazon Web Services (AWS), Python library, and Spark.

Grading:

Your final grade is comprised of exams, assignments, a team project, participation and quizzes. All assignments and exams are individual unless otherwise announced. More detailed requirements and specifications about them will be provided in class. The composition of your final weighted grade is:

1. Exams	30%
2. Assignments	30%
3. Project.....	30%
4. Participation and Quizzes.....	10%
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Total:	100%

Curve: There are no individual exam or assignment curves. If a curve is needed on the final weighted course grades, it will be applied. If the class average is low, I typically curve up. If the class average is too high, I might curve down to satisfy the requirements of the Dean's Office.

Grading Appeals / Regrading:

Any grade appeals should be summarized in an email and sent to your TA. Clearly indicate your class/section, name (if different than Canvas), which assignment should be regraded, and why. Do not use any other method (such as Canvas comments) for such communication. Appeals must be filed within one (1) week after the graded item has been returned to you. In case of a grade appeal, we regrade the entire assignment, not just the objected (appealed) part.

Exams:

There will be two exams. Exams will be in-class unless announced otherwise before the exam. Exam dates are listed below on the course schedule. The exams' content is not cumulative and only cover new material since the previous exam. Questions on the exam may be multiple-choice, true/false with justification, or short answer formats.

Assignments:

There will be approximately 8 assignments in this class covering concepts from the textbook and class. These will be individual assignments (unless stated otherwise) due online by the deadlines listed on Canvas. Students will be given ample notice about when assignments are available and due on Canvas. All assignments will be weighted the same. There are no drops for assignments.

Project:

This class has a final group project. Teams should be 4 to 6 students each. Detailed requirements about the project will be communicated on Canvas. The project will be presented the week after Thanksgiving.

Participation and Quizzes:

I will not take attendance every class. However, you will learn better if you are in class daily to listen, take notes and have your questions answered. Course participation will be a part of your final grade. There will also be quizzes to measure a portion of the participation grade objectively.

In class participation, things I view positively include:

- asking insightful questions about assigned readings
- redirecting a discussion when the current point has been adequately covered
- good analysis supported by case facts or your own experience
- constructive disagreement
- synthesizing and advancing the discussion
- a good sense of humor
- drawing generic learning points from a particular case

Factors I view negatively include:

- lack of involvement - absence, silence, detachment or disinterest, turning off camera
- leading our discussion into unrelated topics
- spending undue amount of time on minor points
- long, rambling comments
- making undue noise, or disturbing the lecture
- disrespectful attitude towards the instructor and classmates
- being unprepared, or passing on a cold call

Here are some guidelines for assessing class participation, especially when I ask a question:

Grade	Criteria
91-100	<ul style="list-style-type: none"> • Gives the right answer or disagrees with my answer. Then, explain and elaborate why. • Demonstrates analysis of readings exceptionally well, relating it to other course material. • Consistent involvement: keeps focus, responds thoughtfully to others' comments.
81-90	<ul style="list-style-type: none"> • Gives the right answer, without an explanation of why, sometimes using a single phrase. • Shows thorough knowledge of case and readings, has thought through implications. • Ongoing involvement: responds to others in a constructive way, thinks through own points.
71-80	<ul style="list-style-type: none"> • Gives the wrong answer but shows some knowledge of case and readings. • Builds on others' contributions. Shows some evidence of trying to analyze facts. • Uneven involvement: demonstrates mediocre evidence of critical thinking.
61-70	<ul style="list-style-type: none"> • Gives the wrong answer and does not demonstrate any knowledge of our readings. • Helps move along the discussion in an incremental manner (e.g., repeats some content.) • Peripheral involvement: Not much new thought; rephrases, underlines earlier comments.
51-60	<ul style="list-style-type: none"> • Skips answering. Does not demonstrate preparation. • Present in class. Not disruptive. • States straight facts from the content when called on or directly asked.
1-50	<ul style="list-style-type: none"> • Present, but demonstrates no evidence of preparation. • Shows lack of interest or respect for other's contributions. • Obviously did not prepare.
0	<ul style="list-style-type: none"> • Absent. Turned off camera in Zoom for no explanation. • If present, engages in disruptive behavior. • Misses quizzes.

Class Policies:



Emails/Communication:

Please note that I typically teach multiple sections and get hundreds of emails on some days. If you decide to write me an email, **start with a clear subject line**. This not only helps me, but also keeps your emails out of the spam folder. Then, make sure to **include your course name, section, and your full name** (this is especially important if you are using a personal email account.) I also recommend using a professional language and keeping it concise if possible.

Statement on your Learning Success:

Your success in this class is important to me. We will all need accommodations because we all learn differently. If there are aspects of this course that prevent you from learning or exclude you, please let me know as soon as possible. Together we'll develop strategies to meet both your needs and the requirements of the course. I also encourage you to reach out to the student resources available through UT. Many are listed on this syllabus, but I am happy to connect you with a person or Center if you would like.

Students with Disabilities:

The university is committed to creating an accessible and inclusive learning environment consistent with university policy and federal and state law. Please let me know if you experience any barriers to learning so I can work with you to ensure you have equal opportunity to participate fully in this course. If you are a student with a disability, or think you may have a disability, and need accommodations please contact Services for Students with Disabilities (SSD). Please refer to SSD's website for contact and more information: <http://diversity.utexas.edu/disability/>. If you are already registered with SSD, please deliver your Accommodation Letter to me as early as possible in the semester so we can discuss your approved accommodations and needs in this course.

Diversity and Inclusion

It is my intent that students from all diverse backgrounds and perspectives will be well served by this course, that students' learning needs will be addressed and that the diversity that students bring to this class can be comfortably expressed and be viewed as a resource, strength, and benefit. Please let me know right away if this ever is not the case. Please also make the TAs and me aware if you have a preferred name or pronoun that you would prefer we use as soon as possible.

Religious Holy Days

By UT Austin policy, you must notify me of your pending absence at least fourteen 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 in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Personal Pronouns:

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name, unless they have added a "preferred name" with the Gender and Sexuality Center (<http://diversity.utexas.edu/genderandsexuality/publications-and-resources/>). I will gladly honor your request to address you by a name that is different from what appears on the official roster, and by the gender pronouns you use (she/he/they/ze etc.). Please advise me of any changes early in the semester so that I may make appropriate updates to my records. For instructions on how to add your pronouns to Canvas, visit <https://utexas.instructure.com/courses/633028/pages/profile-pronouns>.

Student Rights & Responsibilities:

- You have a right to a learning environment that supports mental and physical wellness.
- You have a right to respect.
- You have a right to be assessed and graded fairly.
- You have a right to freedom of opinion and expression.
- You have a right to privacy and confidentiality.
- You have a right to meaningful and equal participation, to self-organize groups to improve your learning environment.
- You have a right to learn in an environment that is welcoming to all people. No student shall be isolated, excluded or diminished in any way.

With these rights come responsibilities:

- You are responsible for taking care of yourself, managing your time, and communicating with the teaching team and with others if things start to feel out of control or overwhelming.
- You are responsible for acting in a way that is worthy of respect and always respectful of others.
- Your experience with this course is directly related to the quality of the energy that you bring to it, and your energy shapes the quality of your peers' experiences.
- You are responsible for creating an inclusive environment and for speaking up when someone is excluded.
- You are responsible for holding yourself accountable to these standards, holding each other to these standards, and holding the teaching team accountable as well.

University of Texas Honor Code

The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

Policy on Scholastic Dishonesty

The McCombs School of Business has no tolerance for acts of scholastic dishonesty. The responsibilities of both students and faculty with regard to scholastic dishonesty are described in detail in the BBA Program's Statement on Scholastic Dishonesty at

<http://my.mcombs.utexas.edu/BBA/Code-of-Ethics>. By teaching this course, I have agreed to observe all faculty responsibilities described there. By enrolling in this class, you have agreed to observe all student responsibilities described there. If the application of the Statement on Scholastic Dishonesty to this class or its assignments is unclear in any way, it is your responsibility to ask me for clarification. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since dishonesty harms the individual, all students, the integrity of the University, and the value of our academic brand, policies on scholastic dishonesty will be strictly enforced. You should refer to the Student Conduct and Academic Integrity website at <http://deanofstudents.utexas.edu/conduct/> to access the official University policies and procedures on scholastic dishonesty as well as further elaboration on what constitutes scholastic dishonesty.

Note, if you violate the policy, you will receive a zero on the assignment you cheated on with no chance to redo the assignment. All infractions are reported to the Dean of Students Academic Integrity Office.

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 unless you have my explicit, written permission. Unauthorized sharing of materials promotes cheating. It is a violation of

the University's Student Honor Code and an act of academic dishonesty. I am well aware of the sites used for sharing materials, and any materials found online that are associated with you, or any suspected unauthorized sharing of materials, will be reported to Student Conduct and Academic Integrity in the Office of the Dean of Students. These reports can result in sanctions, including failure in the course.

Drop Policy

University policies permit you to drop this course by the withdraw/drop deadlines set by UT.

McCombs Classroom Professionalism Policy

The highest professional standards are expected of members of the McCombs community. The collective class reputation and the value of the McCombs experience hinges on this. Please let me know right away if this ever is not the case.

Faculty are expected to be professional and prepared to deliver value for each and every class session.

Students are expected to be professional in all respects. Classroom expectations of students include:

- Students will arrive on time.
- Students will be fully prepared for each class.
- Students will attend the class section to which they are registered.
- Students will respect the views and opinions of their colleagues. Disagreement and debate are encouraged. Intolerance for the views of others is unacceptable.
- Phones and wireless devices are turned off unless otherwise instructed by the professor.

Using Email for Official Correspondence to Students

Email is recognized as an official mode of university correspondence. **You are responsible for reading your email for university and course-related information and announcements posted on Canvas.**

You are responsible for keeping the university informed about changes to your email address. You should check your email regularly and frequently - I recommend daily, especially the evenings before class - to stay current with university-related communications, some of which may be time-critical. UT Austin's policies and instructions for updating your email address are found at

<http://www.utexas.edu/its/policies/emailnotify.php>.

Behavior Concerns Advice Line (BCAL)

If you are worried about someone who is acting differently, you may use the Behavior Concerns Advice Line to discuss your concerns about another individual's behavior. This service is provided through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The UT Police Department (UTPD). Call 512-232-5050 or visit <http://www.utexas.edu/safety/bcal>.

Privacy

Information in Canvas is protected by your UTEID login. Please be aware that I will use a merged Canvas site for all sections of the course that I am teaching this semester. This will allow students in other sections to see that you are enrolled in the course and send you email from within Canvas. However, they will not actually learn your email address and no other personal data will be revealed through Canvas. If you have any concerns, please contact the ITS Help Desk at 475-9400 for help removing your name from view of other students.

Title IX Reporting Disclosure

Title IX is a federal law that protects against sex and gender-based discrimination, sexual harassment, sexual assault, sexual misconduct, dating/domestic violence and stalking at federally funded educational institutions. UT Austin is committed to fostering a learning and working environment free from discrimination in all its forms. When sexual misconduct occurs in our community, the university can:

1. Intervene to prevent harmful behavior from continuing or escalating.
2. Provide support and remedies to students and employees who have experienced harm or have become involved in a Title IX investigation.
3. Investigate and discipline violations of the university's [relevant policies](#).

Beginning January 1, 2020, Texas Senate Bill 212 requires all employees of Texas universities, including faculty, 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, writing assignments, class discussions, or one-on-one conversations) must be reported. **I am a Responsible Employee and must report any Title IX related incidents** that are disclosed in writing, discussion, or one-on-one. Before talking with me, or with any faculty or staff member about a Title IX related incident, be sure to ask whether they are a responsible employee. If you would like to speak with someone who can provide support or remedies without making an official report to the university, please email advocate@austin.utexas.edu. For more information about reporting options and resources, visit <http://www.titleix.utexas.edu/>, contact the Title IX Office via email at titleix@austin.utexas.edu, or call 512-471-0419.

Although graduate teaching and research assistants are not subject to Texas Senate Bill 212, they are still mandatory reporters under Federal Title IX laws and are required to report a wide range of behaviors we refer to as sexual misconduct, including the types of sexual misconduct covered under Texas Senate Bill 212. The Title IX office has developed supportive ways to respond to a survivor and compiled campus resources to support survivors.

Campus Safety

Please note the following key recommendations regarding emergency evacuation, provided by the Office of Campus Safety and Security. More info at <https://preparedness.utexas.edu/>.

- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings and assemble outside when a fire alarm is activated.
- Familiarize yourself with all the exits of each classroom and building you may occupy.
- If you need evacuation assistance, inform the instructor in writing asap.
- In the event of an evacuation, follow the instruction of faculty or class instructors.
- Do not re-enter a building unless given instructions by Austin or UT police or fire authorities.

In case of emergency, further information will be available at <http://www.utexas.edu/emergency>.

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). All assignments and quiz due dates will be listed on Canvas.

Class #	Day	Date	Topic
1	W	25-Aug	Course Overview Introduction
2	M	30-Aug	Data-Business-Strategy Alignment
3	W	1-Sep	Client/server architecture & Conceptual design: Entity-Relationship Modeling
-	M	6-Sep	Labor Day - No Class
4	W	8-Sep	Logical Design: Detailed Models and Normalization
5	M	13-Sep	Physical Design: DDL Create Tables & DDL Script
6	W	15-Sep	Advanced Design: Indexes & Sequences
7	M	20-Sep	SQL Essentials Review: DML (<i>online/remote</i>)
8	W	22-Sep	SQL Essentials Review: More complex queries (<i>online/remote</i>)
9	M	27-Sep	Advanced SQL: Summary Queries
10	W	29-Sep	Advanced SQL: How to Code Subqueries
11	M	4-Oct	Issues with Relational Model, ETL, Data Warehouse design
12	W	6-Oct	OLAP, ROLAP, Data Analytics, Data Warehousing
13	M	11-Oct	Exam 1
14	W	13-Oct	Data Governance
15	M	18-Oct	Enterprise Data Architecture
16	W	20-Oct	Big Data Introduction
17	M	25-Oct	MapReduce Introduction
18	W	27-Oct	Applications of MapReduce
19	M	1-Nov	Applications of MapReduce
20	W	3-Nov	Spark Introduction, RDDs
21	M	8-Nov	Spark - Datasets and data frames
22	W	10-Nov	Hands-on programming using Databricks, PySpark, SQL
23	M	15-Nov	Hands-on programming using Databricks, PySpark, SQL
24	W	17-Nov	Exam 2
25	M	22-Nov	Project Discussion
-	W	24-Nov	Thanksgiving holiday
26	M	29-Nov	Final Project Presentations
27	W	1-Dec	Final Project Presentations
28	M	6-Dec	Last day: Course wrap-up, reflections, evaluations

Note: Schedule is subject to change. Follow in-class and online announcements carefully.