# Welcome to IS 475/675 Database Design and Implementation!

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# Agenda for 1/22/2025

- Give an overview of the class.
  - Learning goals
  - Methods of learning
  - Grading structure
  - Computing environment
  - Communication methods
- Answer questions.
- Break into small groups to do a review exercise.
- Re-gather to start going over the answers to the review exercise.

# What is the premise for this class?

Organizations are drowning in data.

Organizations have been collecting data for years – some of it is inconsistent, inaccurate, and virtually useless, but they keep collecting it anyway.

We need to make the data as accurate and usable as possible so that it can provide concise, accurate, and targeted information for decision making.

# What is the objective of this class?

- The purpose of this course is to enhance your knowledge of database design, creation, and implementation. This course combines conceptual knowledge of database management systems (DBMS) with practical, hands-on skills using Microsoft's SQL Server DBMS.

| Area of Emphasis | Specific Learning Outcome |
|---|---|
| Learn how to design a relational database | • Recognize when potentially inaccurate data could be stored in a database.<br>• Design a database that is stable and understand why the design is stable.<br>• Evaluate the design of a database.<br>• Use entity-relationship diagrams (ERD's) to document a database design. |
| Become a SQL programmer (intermediate level) | • Create, relate, populate, and modify tables in a database using Microsoft's SQL Server database management system (DBMS).<br>• Create result tables using SQL queries.<br>• Use utilities and create custom procedures to import data into a database and transform that data into "clean" data that can be processed by other programs. |
| Describe how people and software manage data | • List the different types of data stored by organizations.<br>• Describe the different layers of a business application.<br>• Identify the objectives and design goals of a transaction database versus a data warehouse.<br>• Describe the general components and features of a DBMS. |

# How will you learn?

| | |
|---|---|
| Readings – 2 texts | • Modern Database Management, 13th edition<br>• SQL Server 2022 for Developers. |
| Exercises (not graded) | • Practice designing databases<br>• Learn how to code in SQL<br>• Learn how to extract, transform and load data |
| Videos | • PowerPoints about course content – limited<br>• Demonstrations of the use of SQL in Microsoft's SQL Server environment |
| HW Assignments | • Integrative assignments asking you to put together topics<br>• Could become part of your personal "portfolio" of projects |
| Lectures | • We will have class sessions each week to lecture about course material, do small group or solo exercises and review the answers to homework assignments. |

# How will you be graded?

## Undergraduate Students

| Graded Component | Points | Percentage of Grade |
|---|---|---|
| Design and SQL Homework Assignments (10 assignments) | 600 points | 60% |
| First Test (Design) | 200 points | 20% |
| Second Test (Comprehensive, but lots of SQL) | 200 points | 20% |

## Graduate Students

| Graded Component | Points | Percentage of Grade |
|---|---|---|
| Design and SQL Homework Assignments (8 assignments) | 450 points | 45% |
| Project Assignments | 150 points | 15% |
| First Test (Design) | 200 points | 20% |
| Second Test (Comprehensive, but lots of SQL) | 200 points | 20% |

# What is our computing environment?

- Will use the College of Business remote desktop environment for:
  - Microsoft's SQL Server Management Studio interface to SQL Server.
  - Microsoft Office.
- Can use either a Windows or Apple IOS based computer to access the remote desktop environment.
- Can use an ERD design tool of your choice: i.e. Miro, LucidChart, DrawSQL, Draw.io, Visio, QuickDBD, Smartdraw

# How will we communicate?

- Class sessions will be held twice a week during our designated class times.
- Canvas, referred to as “WebCampus” at UNR, serves as the campus's learning management system.
- Communication will be conducted via email.
- Office hours are on Mondays and Wednesdays from 4-5 PM, and by appointment, located in AB314.
- Appointments can be conducted using Zoom.

# What are the critical course policies?

- The schedule is provided as of today. All deliverables have a due date and time. There are no late assignments. No partial credit. If there is an emergency, then we will establish a new due date for full credit.
- Comply with the university's policies.
- Don't cheat.
- Help create a safe learning environment.
- Give yourself time to complete the assignments.
- Be cautious in how you use generative AI products. They don't often create completely correct answers for this class.
- Be kind, compassionate, and polite to me and your fellow classmates.

# Do you want to work alone or in a team?

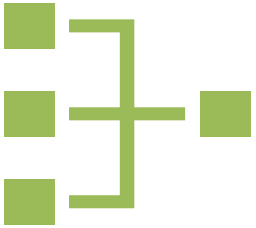
- It is completely up to you.
- By default, I will put you in a team.
- By non-default, you must make your first team declaration by 11:59PM on Wednesday, 1/29/2025.
- There is a protocol about how to declare that you want to work alone or part of your own defined team. The protocol is available on WebCampus.
  - If you created your own team, declare the team.
  - If you want to work solo, move yourself into one of the solo teams.
- Teams can have a maximum of 4 people.
- You can quit a team and join a new team, fire members of the team, quit and work alone. It is up to you, but you must **Follow the Protocol**!

# If you decide to work as part of a team

- Create an effective team.
  - Establish the goals of the team – do you want to learn, do you want to earn an "A", do you like to work at the last minute, do you become stressed if you don't have things done well before they are due?
  - Select a team leader. Seriously. Someone needs to lead.
  - Select an effective communication method and practice using it. Make sure everyone on the team knows how to use the communication method.
  - Divide the work among team members and document it.
  - Produce individual milestones and document them.
  - Monitor compliance with milestones.
  - Develop a backup plan.

# What happens this first week?

Review database concepts.



Discuss/Review the structure and content of an entity-relationship diagram.

Focus on creating a shared vocabulary for database design concepts.