
DS530: Big Data and Data Management

Jun Shan

Course Introduction

Course Description

This course discusses foundational concepts of data management systems, with emphasis on the relational database design and the usage of Structured Query Language (SQL).

Why SQL?

Relational database is the main stream data management tool in current market (90%, if not more).

SQL is the one and only computer language used in relational database operation.

- The most sought-after skill (keyword) in computer skill category in job searching websites in the past 10 years.
- Frequently tested in job interviews

Teaching Format: Hybrid

- A combination of in person and virtual teaching method
 - Week 1 (today): Virtual
 - ~0.5hr course introduction.
 - ~2hr instructional videos
 - ~1hr interactive lab
 - Week 6: in person. 2hr mid term + 1.5hr review
 - Week 11: in person. 3.5hr final exam

Teaching Format: Hybrid

- Other weeks: 2hr lecture (video watching/quiz) + 1.5hr lab
 - Lecture: complete before class or in class (6-8p)
 - Lab: after lecture is completed, work on lab in class,
 - Must finish in class (click on submit button)
 - Need to share your screen to show your progress
 - Assignment after each class

Teaching Format: Hybrid

- Other weeks:
 - Will determine if next session is in person/virtual each week
 - Reserve the right to change with 24hr notice
 - **Virtual or not, you must present at 6pm**
 - **Failure to complete lecture/lab sessions or failure to share your lab answers is considered absent.**

Class Schedule

Week	Topic
1	Introduction to Relational Database. CREATE and DROP.
2	Simple INSERT, SELECT, and Entity Relationship Model
3	Normalization and table manipulation.
4	System functions
5	WHERE clause. Set operation.
6	Midterm (2hr) and review.
7	JOIN
8	GROUP BY. View and CTE.
9	User defined functions
10	Data Warehouse. SQL recap.
11	Final Exam

May adjust based on progress.

Blackboard

- All course materials are posted on Blackboard
 - Lecture PPT (PDF)
 - Lecture recording
 - Labs
 - Assignments

Textbook

- **A Guide to SQL** by Philip J. Pratt, Mary Z. Last
Currently 10th edition, but older editions are OK too.

We will have our own teaching schedule but the book can serve as a reference to key concepts and syntax.

- Internet: Google

Key skill to use SQL in real world

Grade

- | | |
|-------------------|--------------|
| 1. Lecture videos | 24% of Grade |
| 2. Labs | 8% of Grade |
| 3. Assignments | 8% of Grade |
| 4. Midterm Exam | 30% of Grade |
| 5. Final Exam | 30% of Grade |

May adjust based on feedback.

Assignment

- Assigned after each session
- Strongly encourage you to start working on it ASAP.
- Please complete before the day of next meeting so that I have time to review and provide feedback at night

Additional Help

- Contact email: jshan@saintpeters.edu

Feel free to let me know if you need help. If the office hour does not fit into your schedule, send me an email with 3-4 time slots that work for you. I will pick one and setup a zoom session.