

Course Summary and COSC 404

COSC 304 – Introduction to Database Systems



Course Summary

The COSC 304 course goal was to:

Become an expert database user with the ability to query existing databases using SQL, design new databases using UML, and write programs that use databases.

High-demand skills acquired:

- Querying: SQL, relational algebra
- Database design: ER, UML
- Programming: Java, JDBC, PHP, Node.js, Python, HTML, JavaScript, JSON, XML, XPath
- DevOps: Docker, installing databases and web servers, MySQL, SQL Server, Tomcat
- Database skills make you more marketable and allow you to construct more sophisticated systems. Used AI to help assist with these tasks and skills.
- All these skills practiced during the lab assignments and project.

Survey Question: Lecture Value

Question: On a scale of 1 to 5 with 5 being the highest, how valuable/useful was the lecture time?

A) 1

B) 2

C) 3

D) 4

E) 5

Survey Question: Assignment Value

Question: On a scale of 1 to 5 with 5 being the highest, how valuable/useful were the lab assignments?

A) 1

B) 2

C) 3

D) 4

E) 5

Survey Question: Virtual Lab Attendance

Question: How often did you attend the virtual help sessions?

- A)** Never
- B)** A few times during the semester
- C)** About every 2nd week
- D)** Almost every week
- E)** Every week

Survey Question: Lab Replacement

Question: What was your opinion of having a virtual/physical help sessions with drop-in hours rather than scheduled labs?

- A)** Strongly Disagree
- B)** Disagree
- C)** Neutral
- D)** Agree
- E)** Strongly Agree

Survey Question: Workload

Question: On a scale of 1 to 5 with 1 being very low and 5 being very high, how was the overall workload compared to other courses and your expectations?

A) 1

B) 2

C) 3

D) 4

E) 5

Survey Question: Canvas Questions

Question: On a scale of 1 to 5 with 5 being the highest, how valuable/useful were the Canvas quiz questions used in the course?

A) 1

B) 2

C) 3

D) 4

E) 5

Survey Question: Clicker Questions

Question: On a scale of 1 to 5 with 5 being the highest, how valuable/useful were the clicker questions used in the course?

A) 1

B) 2

C) 3

D) 4

E) 5

Survey Question: Live Questions

Question: On a scale of 1 to 5 with 5 being the highest, did the live questions motivate you to complete the exercises?

A) 1

B) 2

C) 3

D) 4

E) 5

Survey Question: Chatbot Usage

Question: How often did you use the chatbot or Anytime Question feature?

- A) Never
- B) Once
- C) A few times during the semester
- D) Less than 5 times
- E) More than 5 times

Survey Question: Chatbot and Anytime Questions

Question: The chatbot and Anytime question support was helpful for my learning in this course.

A) Strongly Disagree

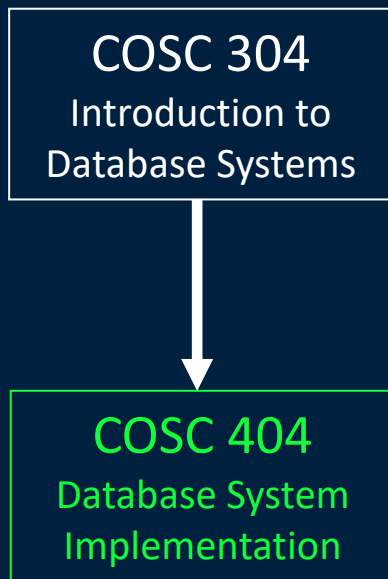
B) Disagree

C) Neutral

D) Agree

E) Strongly Agree

COSC 304 vs. COSC 404



Database Design and Programming

- Data models - ER, relational, XML, JSON
- Query languages - SQL, relational algebra
- Design project, Docker, MySQL/SQL Server
- Database skills and techniques as a user
- How to use a DBMS ; how to build a database

Database System Implementation

- Storage and index structures
- Transaction management, concurrency control
- Query processing, recovery and reliability
- How to build a DBMS
- Non-relational (NoSQL) systems/architectures
- How to select a DBMS
- Docker, MongoDB, PostgreSQL, testing

COSC 404 Course Goals

COSC 404 is about how a database works (the "**black box**").

- Inside is storage, indexing, query processing/optimization, transactions, concurrency, recovery, distribution, lots of stuff!

Goals:

- 1) Be a better, "expert" user of database systems.
- 2) Be able to use and compare different database systems.
- 3) Adapt the techniques when developing your own software.

You will gain **lots** of industrial experience using a variety of databases and become a better, more experienced developer.

- MySQL, PostgreSQL, Microsoft SQL Server, MongoDB, JUnit, Snowflake, Java, JDBC, javacc, JSON, Map-Reduce, SQL, Docker

Thank you for a great course!

Good luck on the exam!



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