

## LIS 9731 DATABASE MANAGEMENT SYSTEMS

Term: Fall 2021

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Course Delivery: Online, New lessons every Monday

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Office Hours: by appointment via Zoom

### Course Description

Data modelling and database structures and their application to information retrieval and processing. Analysis of data requirements and implementation of systems using a relational DBMS. Mounting a database on the Web. Programming or scripting for database applications.

### Course-Level Learning Outcomes

Upon successful completion of readings, assignments, and class participation, students will be able to:

- Understand data modelling and database structures and their application to information retrieval and processing (Program-Level Learning Outcome 6).
- Analyze data requirements and implementation of systems by means of a relational database management system (Program-Level Learning Outcome 6, 8).
- Understand the concept of Web access to databases (Program-Level Learning Outcome 4, 6).

### Recommended Reading

Jukic, N., Vrbsky, S., Nestorov, S., & Sharma, A. (2021). **Database Systems: introduction to databases and data warehouses** (Edition 2.0.). Burlington, VT: Prospect Press.

Available in the FIMS Library. Chapters 2 and 3 posted in OWL.

Coronel, C & Morris, S. (2014). **Database Systems: Design, Implementation, & Management**, 11th ed. Stamford, CT, USA: Cengage Learning. ISBN-13: 978-1285196145.

QA76.9.D26R62 2016

<http://alpha.lib.uwo.ca/record=b6677837~S20>

Available in the FIMS Library. Chapters 2 – 7 posted in OWL.

Eckstein, Jonathan & Schultz, Bonnie R. (2018) **Introductory Relational Database Design for Business, with Microsoft Access**, Hoboken, N.J.: John Wiley & Sons, Inc. ISBN-13: 978-1-119-32941-1

QA76.9.D3E325 2018

<http://alpha.lib.uwo.ca/record=b7038179~S20>

Available as an eBook through Western Libraries

Watt, Adrienne. **Database Design** – 2<sup>nd</sup> Edition BC Open TextBooks

<https://opentextbc.ca/dbdesign01/>

Other readings will be posted in OWL throughout the course.

### Course Dates

WEEK	DATE	LESSONS	ASSIGNMENTS
1	Monday, Sep. 13	Introduction to the course Types of Databases History of Databases	
	Friday, Sep. 17		Exercise 1
2	Monday, Sep. 20	Database in Excel Database in Access Access data types	
	Friday, Sep. 24		Assignment 1
3	Tuesday, Sep. 27	Entities Entity Relationships Entity Diagrams	
	Friday, Oct. 1		Exercise 2
4	Monday, Oct. 4	Discussion of Exercise 2 Normalization Rules	
	Friday, Oct. 8		Exercise 3
5	Monday, Oct. 11	Discussion of Exercise 3 Normalization Examples	
	Friday, Oct. 15		Assignment 2
6	Monday, Oct. 18	Queries in Access Northwind example database Names	
	Friday, Oct. 22		Exercise 4
7	Monday, Oct. 25	SQL	
	Friday, Oct. 29		Exercise 5
8	Nov. 1 – Nov. 5	Research Week, no lessons	
9	Monday, Nov. 8	Access Forms	
	Friday, Nov. 12		Assignment 3

10	Monday, Nov. 15	Northwind Forms	
	Friday, Nov. 19		Exercise 6
11	Monday, Nov. 22	Access Reports	
	Friday, Nov. 26		Exercise 7
12	Monday, Nov. 29	mySQL Demo SQLEXPRESS Demo	
13	Monday, Dec. 6	Web database Thesis page tour PHP	
14	Tuesday, Dec. 14	Project work	Final Project

## Lessons

This course will be delivered through OWL, Westerns Learning Management System (LMS).

Each lesson in OWL will have one or more short 10 to 20-minute videos, links to readings, and the lesson PowerPoint if applicable. The videos will consist of lecture and demonstration.

## Requirements

This course requires that every student have a computer that can run Microsoft Access. Many of the assignments and the final project are done in Access and there is no suitable replacement.

Access is part of the Microsoft Office 365 suite and every student can download it from <https://myoffice.uwo.ca>

Access is also included in the MyVlab virtual environment <https://myvlab.uwo.ca/> provided by WTS (Western Technology Services).

MyVlab can be accessed from home and the VMWare Horizon client that is used to access myVLab will run on Windows, Macs or Linux.

There is no Mac version of Microsoft Access. That means that students with Apple Mac computers will have to use MyVlab (the recommended solution) or run a Windows virtual machine. Instructions on doing that will be available in OWL.

## Marking

Content	Grade
Assignment 1	15
Assignment 2	20
Assignment 3	15
Project implementation and project report	30
Exercises	14
Participation	6

All assignments and exercises are due on Friday midnight of the indicated week in the course dates table.

The final project is due the last day of classes Tuesday Dec 14, 2021. No extensions will be allowed for the final project due to marking deadlines.

Each exercise is worth 2 marks.

The exercises are intended to make sure that everyone is keeping pace with the material and not falling behind. You will get 1 mark for submitting an exercise and a second mark if it is correct.

Participation will be based on participation in the Zoom Q&A.

Assignment 1 15 marks

Create a database and discuss your design decisions

Assignment 2 20 marks

Normalize a database and discuss the rationale behind your choices.

Assignment 3 15 marks

Develop 4 queries using your Assignment 2 database

Final Project 30 marks

Develop a Microsoft Access database system including menu, queries, forms and reports

Exercise 1 2 marks

Create an Access database with at least one table

Exercise 2 2 marks

List the entities in a specified scenario

Exercise 3 2 marks

List the entities, attributes and relationships in a specified scenario

Exercise 4 2 marks

Create at least one query in an Access database

Exercise 5      2 marks

Write a SQL query for an example database

Exercise 6      2 marks

Create a form in an Access database

Exercise 7      2 marks

Create a report in an Access database

Details on the assignments will be available in OWL. All assignments will be handed in through OWL and all marks will be returned in OWL.

The results of some exercises and assignments will be anonymously shared with the entire class with commentary.

Your mid-term mark will be based on your marks for Assignments 1 and 2 and Exercises 1, 2 and 3.

Late assignments will be assessed a penalty of 5 marks out of 100 for each day that it is late. Since all assignments are due on Friday, if an assignment is handed in on Saturday, the penalty will be 5 marks out of 100, Sunday will be 10 out of 100, etc.

Late exercises will receive a mark of 0.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_grad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf)

There will be two optional Q&A sessions per week on Thursday 10:00am to 11:00pm and 7:00pm to 8:00pm via Zoom. You do not have to share your video or audio to participate in the Zoom Q&A however doing so is encouraged as it creates a greater sense of community in the class. Questions can be asked via chat. The participation grade will be based on these sessions.

Although the Q&A sessions are optional, they are the primary means of addressing student questions and concerns, so attendance is encouraged.

The Zoom Q&A sessions will not be recorded.

Individual help is available through email or privately scheduled Zoom meetings.

**Additional Information:**

Enrollment in this course is restricted to graduate students in (Insert name of program(s)), as well as any student that has obtained special permission to enroll in this course from the course instructor as well as the Graduate Chair (or equivalent) from the student's home program.

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“Students who are in emotional/mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.”

Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program.

Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are strongly encouraged to register with Accessible Education Western (AEW), a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both AEW and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction.