Computer Science (COMP) 378

Introduction to Database Management (Revision 9)

Status:	Replaced with new revision, see the **course listing** ⧉ for the current revision ⊗
Delivery mode:	**Individualized study online** ⧉ with **eText** ⧉
Credits:	3
Area of study:	Science
Prerequisites:	**COMP 361**
Precluded:	None
Challenge:	COMP 378 has a challenge for credit option.
Faculty:	**Faculty of Science and Technology** ⧉
Notes:	Students who are concerned about not meeting the prerequisite for this course are encouraged to contact the **course coordinator** before registering.

Overview

COMP 378 covers foundational concepts for database design and development and provides an introduction to database administration and data analytics. This course is developed along the database development life cycle that will allow students to easily relate topics to one another along a logical path. The structure of the course follows the development of the material in *Modern Database Management* (13th ed.). There are nine units in the Study Guide. Each unit begins with a goal, followed by one or more sections of learning. Each section contains a goal, objectives, and activities.

The theoretical material in this course is supplemented with lab, assignment, and project components. The labs provide hands-on training for students and link to commercial products. They are separate from the marked assessment.

Outline

- Unit 1: Introduction to Database Systems

- Unit 2: Conceptual Data Modeling using Entity-Relationship Diagrams

- Unit 3: Logical Database Design using the Relational Model

- Unit 4: SQL – A Standard Navigation Language for Relational Databases

- Unit 5: Introduction to Three-Tier Architectures and Controlling Concurrent Access to Data

- Unit 6: Physical Database Design and Fundamental DBA Activities

- Unit 7: Introduction to Data Warehousing

- Unit 8: Introduction to Big Data Analytics and NoSQL Database Management Systems

- Unit 9: Data Quality and Database Administration

Learning outcomes

Upon successful completion of this course, the student should be able to

- analyze an organization's needs regarding data, data organization, and data storage.

- apply principles of relational database design to build data models.

- develop and implement database solutions.

- elaborate data storage and indexing options for optimal query processing.

- perform basic database administration tasks.

- analyze an organization's needs regarding data analytics, and design solutions using the concepts of data warehousing and NoSQL.

Evaluation

To **receive credit** ⤤ for COMP 378, you must achieve an average grade of at least **D (50 percent)** ⤓ , an average grade of at least 50 percent on the combined marks of the assignments and the final project, and at least 50 percent on the invigilated final examination. The weighting of the composite grade is as follows:

Activity	Weight
Assignment 1	15%
Assignment 2	15%
Assignment 3	15%
Final Project	20%
Final Examination	35%
Total	**100%**

The **final examination** for this course must be requested in advance and written under the supervision of an AU-approved exam invigilator. Invigilators include either ProctorU or an approved in-person invigilation centre that can accommodate online exams. Students are responsible for payment of any invigilation fees. Information on exam request deadlines, invigilators, and other exam-related questions, can be found at the **Exams and grades** ⤤ section of the Calendar.

To learn more about assignments and examinations, please refer to Athabasca University's **online Calendar** � .

Materials

Hoffer, J. A., Ramesh, V., & Topi, H. (2019). *Modern database management* (13th ed.). Pearson. 📖 (eText)

eText

Registration in this course includes an electronic textbook. For more information on **electronic textbooks** � , please refer to our **eText Initiative site** � .

Other Materials

Software: To familiarize students with database techniques and languages being used in work environments, COMP 378 includes a set of hands-on practice labs and a final project that require installing a database system on their computer. The recommended database management system is PostgreSQL. Although the course covers many practical aspects of transactions processing in databases, the primary focus is on general concepts rather than details of a particular commercial system.

Challenge for credit

Overview

The challenge for credit process allows you to demonstrate that you have acquired a command of the general subject matter, knowledge, intellectual and/or other skills that would normally be found in a university-level course.

Full information about **challenge for credit** � can be found in the Undergraduate Calendar.

Evaluation

To **receive credit** � for the COMP 378 challenge, you must achieve a grade of at least **D (50 percent)** 📄 on the project and 50 percent on the examination.

Activity	Weight
Project	50%
Examination	50%
Total	**100%**

The **challenge examination** for this course must be taken online with an AU-approved exam invigilator at an approved invigilation centre. It is your responsibility to ensure your chosen invigilation centre can accommodate online exams. For a list of invigilators who can accommodate online exams, visit the **Exam Invigilation Network** ⤤ .

📄 **Challenge for credit course registration form**

Important links

> **Academic advising** ⤤

> **Program planning** ⤤

> **Request assistance** ⤤

> **Support services** ⤤

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

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View **previous revision** 📄