School of
Engineering and Computer Science
Te Kura Mātai Pūkaha, Pūrorohiko

Prescription

The course addresses fundamental principles underlying databases and database management systems. It covers the structure and principles of the relational data model, including SQL, and the principled design of the relational database schema. It also addresses issues in database transaction procession, concurrency control, recovery, and the complexity of query processing.

Course learning objectives

Students who pass this course should be able to:

1. Demonstrate understanding of the principles of database systems generally and especially the relational database model.
2. Set up, query, and update a relational database using interactive SQL and using a transaction program written in Java.
3. Apply database principles, including data integrity and normalisation principles, and common trade-offs in designing a relational database.
4. Apply principles and common trade-offs in relational database query optimization.
5. Explain the basic principles of database concurrency control and recovery and implement them within a transaction program.
6. Explain the basic principles of NoSQL databases.

Course content

The course is primarily offered in-person, but there will also be a remote option and there will be online alternatives for all the components of the course for students who cannot attend in-person.
Students taking this course remotely must have access to a computer with camera and microphone and a reliable high-speed internet connection that will support real-time video plus audio connections and screen sharing. Students must be able to use Zoom; other communication applications may also be used. A mobile phone connection only is not considered sufficient. The computer must be adequate to support the programming required by the course: a reasonably powerful modern windows, macintosh, or unix laptop or desktop computer will be sufficient, but an Android or IOS tablet will not.
If the assessment of the course includes tests, the tests will generally be run in-person on the Kelburn campus. There will be a remote option for students who cannot attend in-person and who have a strong justification (for example, being enrolled from overseas). The remote test option may use the ProctorU system system for online supervision of the tests. ProctorU requires installation of monitoring software on your computer which also uses your camera and microphone and monitors your test-taking in real-time. Students who will need to use the remote test option must contact the course coordinator in the first two weeks to get permission and make arrangements.

Withdrawal from Course

Withdrawal dates and process:
https://www.wgtn.ac.nz/students/study/course-additions-withdrawals

Lecturers

Hui Ma (Coordinator)

hui.ma@vuw.ac.nz 04 4635657

259 Cotton, Kelburn

Teaching Format

This course will be offered in-person and online. For students in Wellington, there will be a combination of in-person components and web/internet based resources. It will also be possible to take the course entirely online for those who cannot attend on campus, with all the components provided in-person also made available online.

During the trimester there will be three lectures per week. Some lecture times will be used for tutorials.

Student feedback

Student feedback on University courses may be found at:
www.cad.vuw.ac.nz/feedback/feedback_display.php

Dates (trimester, teaching & break dates)

- Teaching: 22 February 2021 - 28 May 2021
- Break: 05 April 2021 - 18 April 2021
- Study period: 31 May 2021 - 03 June 2021
- Exam period: 04 June 2021 - 19 June 2021

Class Times and Room Numbers

22 February 2021 - 04 April 2021

- **Tuesday** 11:00 - 11:50 – LT002, Hugh Mackenzie, Kelburn
- **Thursday** 11:00 - 11:50 – LT104, Hugh Mackenzie, Kelburn
- **Friday** 11:00 - 11:50 – LT104, Hugh Mackenzie, Kelburn

19 April 2021 - 30 May 2021

- **Tuesday** 11:00 - 11:50 – LT002, Hugh Mackenzie, Kelburn
- **Thursday** 11:00 - 11:50 – LT104, Hugh Mackenzie, Kelburn
- **Friday** 11:00 - 11:50 – LT104, Hugh Mackenzie, Kelburn

Other Classes

There will be helpdesk sessions starting in week 2 in one of the school labs - details to be announced.

Set Texts and Recommended Readings

Required

The textbook for SWEN 439 is:

- R. Elmasri and S. Navathe, *Fundamentals of Database Systems; 6th/7th edition*, Pearson/Addison Wesley, 2014/2015.

Mandatory Course Requirements

In addition to achieving an overall pass mark of at least 50%, students must:

- achieve at least 40% of the overall marks for projects and assignments (i.e. 40%*45 marks), to demonstrate achievement of all the CLOs of the course.
- achieve at least a **D** grade for the test.

If you believe that exceptional circumstances may prevent you from meeting the mandatory course requirements, contact the Course Coordinator for advice as soon as possible.

Assessment

This course will be assessed through assignments, projects and a test. The test will be held in the assessment period of the trimester.

The assessment weights shown below are based on the assumption that we can do the tests in-person. If there is a lockdown during the test the weight of the test will be reduced from 30% to 20%, and the deducted 10% will be added to the weights of Assignment1-3, and Project 1-2.

Assessment Item	Due Date or Test Date	CLO(s)	Percentage
Assignment 1	Week 5	CLO: 1	15%
Assignment 2	Week 8	CLO: 5	5%
Assignment 3	Week 11	CLO: 4	5%
Project 1	Week 7	CLO: 2	20%
Project 2	Week 12	CLO: 3,6	10%
Essay		CLO:	15%
Test		CLO: 1,2,3,4,5,6	30%

Extensions

Approval to submit assignments and projects late without penalty will only be granted in exceptional circumstances whenever possible arranged prior to the due date. Medical and other excuses may be accompanied by a doctor's certificate.

Submission & Return

Unless otherwise instructed, assignments may be submitted via the School's electronic submission system or SWEN 439 assignment box on level 2 of the Cotton Building, and projects should be submitted via the electronic submission system. Marks and comments will be returned through the ECS marking system or via the course web pages.

Workload

In order to maintain satisfactory progress in SWEN 439, you should plan to spend an average of *10* hours per week on this paper, which includes attending lectures, solving homework assignments, doing practical work, additional reading, and reviewing lecture material.

Teaching Plan

See: https://ecs.wgtn.ac.nz/Courses/SWEN439_2021T1/LectureSchedule

Links to General Course Information

- Academic Integrity and Plagiarism: https://www.wgtn.ac.nz/students/study/exams/integrity-plagiarism
- Academic Progress: https://www.wgtn.ac.nz/students/study/progress/academic-progess (including restrictions and non-engagement)
- Dates and deadlines: https://www.wgtn.ac.nz/students/study/dates
- Grades: https://www.wgtn.ac.nz/students/study/progress/grades
- Special passes: Refer to the Assessment Handbook, at https://www.wgtn.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf
- Statutes and policies, e.g. Student Conduct Statute: https://www.wgtn.ac.nz/about/governance/strategy
- Student support: https://www.wgtn.ac.nz/students/support
- Students with disabilities: https://www.wgtn.ac.nz/st_services/disability/
- Student Charter: https://www.wgtn.ac.nz/learning-teaching/learning-partnerships/student-charter
- Terms and Conditions: https://www.wgtn.ac.nz/study/apply-enrol/terms-conditions/student-contract
- Turnitin: http://www.cad.vuw.ac.nz/wiki/index.php/Turnitin
- University structure: https://www.wgtn.ac.nz/about/governance/structure
- VUWSA: http://www.vuwsa.org.nz

Offering CRN: 18598

Points: 15
Prerequisites: 60 300-level pts from COMP, NWEN, SWEN
Restrictions: SWEN 304
Duration: 22 February 2021 - 20 June 2021
Starts: Trimester 1
Campus: Kelburn