

CSC443H1 Database System Technology Syllabus

Course Description

Database management systems are the bookkeepers of modern civilization. This course covers the algorithms and data structures that constitute the guts, bones, and arteries of these systems. Much of this course is about understanding the properties of modern hardware devices and designing data structures and access methods that optimize for them. We will also see that there is usually never one "correct" way for storing data: it is a question of managing trade-offs to optimize for what the user is trying to do. This course is important for anyone who intends to work with, tune, extend, or build data management systems.

Piazza

We will be using [Piazza](#) as our main discussion board. You are responsible for reading all postings made by me or the TAs. Please use Piazza to ask questions about assignments and course lecture materials so that everyone can benefit.

Prerequisites

Students should have taken courses in Introduction to databases, operating systems, and data structure design and analysis. Hands-on experience with C/C++, Java or Python is also required.

Contact

Course announcements will arrive through Quercus. Aside to that, this course website is required reading. It contains essential material and will be updated throughout the semester. Please use Piazza whenever possible to ask questions about course material. For personal questions, email me from your UofT address at nivdayan@cs.toronto.edu. Please include "csc443" in the subject line along with your full name. If you do not hear back quickly, we are always available during office hours to help.

Reading Material

The course textbook is "Database Management Systems" by Raghu Ramakrishnan and Johannes Gehrke, 3rd Edition. It is available new and used at the UofT bookstore and in the library. We are interested in Parts III to V. While this textbook is classic, it is also dated (20 years old). Therefore, the reading material will also draw from various sources, including research papers and articles, about state-of-the-art advances in the field.

Academic Integrity

Homeworks should be done individually and the work you submit must be your own. It is an academic offence to copy someone else's work. Whether you copy or let someone else copy, it is an offence. Academic offences are taken very seriously. At the same time, we want you to benefit from working with other students. It is appropriate to discuss course material related to homeworks, and we encourage you to do so.

Marking Scheme

There will be a midterm (20%), a final (40%) and a group project (40%) for this course.

Academic Integrity

The project hand-ins must be the group's own work. It is an academic violation to copy code or experimental results from other groups, whether you copy yourself or let someone else copy. That said, we encourage you to discuss course material widely with your fellow students within and across groups.

Accessibility

The University of Toronto is committed to accessibility. If you require accommodations or have any accessibility concerns, please visit [Accessibility Services](#) as soon as possible.

Final Exam

the final exam will be scheduled by Arts & Science and take place during the examination period.

Final Project

The course involves a major programming assignment that students will do in groups of twos or threes. It is up to the students to form groups. The goal of working in groups is to balance the load among the students. Moreover, it is worthwhile to get to know your classmates, as they will be from your network once you graduate. Large-scale programming assignments in the real world are done in groups, so it's worthwhile to get used to this now. The final deadline for the project is April 10. Implementation will be done in C++.

