CMPT 454 - D100 Database Systems II

Instructor(s): Tianzheng Wang

**Calendar Objective/Description:**
An advanced course on database systems which covers crash recovery, concurrency control, transaction processing, distributed database systems as the core material and a set of selected topics based on the new developments and research interests, such as object-oriented data models and systems, extended relational systems, deductive database systems, and security and integrity.

**Instructor's Objectives:**
Did you ever wonder how come Amazon and Alibaba are capable of handling so many online orders for Black Friday, Single's Day? Have you had an unlucky case where your bank charged you an overdraft fee while you think you have money? Are you frustrated when you see "service unavailable due to maintenance" on your favourite website? This is the course for you to know all about it.

CMPT 454 is a senior-level undergraduate course on the design and implementation of relational database systems, the backbone of many today's data-intensive applications, like e-commerce, banking, social-network, telecom, etc. This course provides an in-depth coverage of core topics in the making of relational database systems, and continues with the first database course, CMPT 354, with a focus on the systems side of relational database systems. Topics includes data storage, indexing, query optimization and transaction processing.

**Prerequisites:**
CMPT 300 and 354.

**Topics:**
- Data storage, indexing
- Query processing
- Transaction processing
- Logging and crash recovery

**Grading:**
To be discussed in the first class.

**Required Books:**

**Reference Books:**

Transaction Processing: Concepts and Techniques, Jim Gray, Andreas Reuter, 9781558601901

**Academic Honesty Statement:**
Academic honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty will be handled in accordance with the SFU Academic Honesty and Student
Conduct Policies ( http://www.sfu.ca/policies/gazette/student.html ).