

COMP 4380 – Database Implementation

Calendar Description Implementation of modern database systems including query modification/optimization, recovery, concurrency, integrity, and distribution.

Prerequisite: COMP 3380.

Outline

- 1) Review: Database concepts and usage (1 week)
- 2) File structures (3 weeks)
 - Basic file organizations; files indexes and hashing
- 3) Query processing and optimization (4 weeks)
 - Relational query evaluation and optimization
- 4) Transaction management (3 weeks)
 - Recovery; concurrency control
- 5) Topics selected from the following (2 weeks):
 - Database security, integrity, and authorization; parallel and distributed databases; object-oriented databases; data mining; data warehousing and OLAP; XML and Web data
- 6) Other advanced topics (if time permits)

Text: Elmasri & Navathe, *Fundamentals of Database Systems*, Addison-Wesley, 2011

Optional References: Garcia-Molina et al., *Database Systems: The Complete Book*, Prentice Hall, 2009

Ramakrishnan & Gehrke, *Database Management Systems*, McGraw-Hill, 2003

Silberschatz et al., *Database System Concepts*, McGraw-Hill, 2011