

## **CS3462 INTRODUCTION TO DATABASE SYSTEMS**

### **Lecturer**

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### **Text Book**

Database Systems

– A Practical Approach to Design, Implementation, and Management, 2<sup>nd</sup> Edition

Connolly Begg, Addison Wesley, 1999

### **Contents**

File organization and storage structures

Heap files, Ordered files, Direct files (Hash files / Random files), Indexed sequential files, B<sup>+</sup>Trees

Database Concepts

Limitation of File-based approach (Tutorial I)

Database approach

Components of the Database Management System (DBMS)

Roles in the database environment

A case study

Basic database models

Database model I – Relational data model

Relational Algebra, SQL, Query optimization

Entity-Relationship Modeling and Normalization

Database design methodology

Conceptual database design, Logical database design, Physical database design

Database administration (Security, Integrity)

Transaction Management

Concurrency control and recovery (Serializability, deadlock, timestamp)

Database model II – Network data model

Database model III – Hierarchical data model

Trends

### **\*Arrangement of Lecture Materials**

Generally materials are ready for download at least 2 days ahead before the lecture, at [www.cs.cityu.edu.hk/~helena/cs3462](http://www.cs.cityu.edu.hk/~helena/cs3462). Please print the lecture notes and carry to the lecture.

### **\*CSLab Terminal Rooms**

Some tutorials will take place in a terminal room provided by CS Lab. Beyond tutorial hours, if nobody has reserved the rooms, you can also use the computers in the rooms for doing assignments or exercises of this course. The most updated time table can be found at [www.cs.cityu.edu.hk/cslib](http://www.cs.cityu.edu.hk/cslib). (Your accounts will be allocated around week 6. You'll be informed when they are ready.)