INFO2120/2820: Database Systems I
COMP5138: Database Mgmt. Systems

Week 1: Organisation and Overview

http://cusp.eng.usyd.edu.au/students/view-unit-page/alpha/INFO2120

Dr. Uwe Röhm
School of Information Technologies

Welcome to INFO2120 & COMP5138!

- Lecturer: Dr. Uwe Röhm
  School of IT Building J12, Level 4
  uwe.roehm @ sydney.edu.au
  Consultation Time: Wed, 2pm – 3pm

- Tutor Team:
  - Bryn Jeffries (TA)
  - Pooyan Asgari, Sasha Bermeister, Adam Chalmers, Scott Maxwell, Callan McNamara, Blake Riosa

- If you have any questions:
  1. contact your tutor (in the lab or by email)
  2. post a message in the discussion forum
  3. for technical support questions, contact Bryn, our TA

Lectures and Tutorials

- Lectures: Tuesdays, 4-6pm Carslaw LT 159
- Tutorials/Lab: Wednesdays and Thursdays; 2 hours
  - School of IT Labs
  - COMP5138: Tuesdays directly after the lecture
  - combination of tutorial and practical lab
- All tutorials/labs (and advanced class) **start in week 2**
- Advanced stream (INFO2820)
  - Additional seminar on Wednesdays, 1-2pm, in SIT LT 123
  - Advanced labs/tutorials on Friday, noon-4pm, in SIT labs
  - Both starting week 2

Outline of the Lecture

	Week	Topic
DB Foundations	Week 1	Introduction
	Week 2	Conceptual Database Design
	Week 3	The Relational Data Model / Logical Database Design
	Week 4	Relational Algebra and SQL (Part 1)
	29 March - 7 April Semester Break (Easter)	
	Week 5	Structured Query Language (SQL)
	Week 6	Schema Refinement and Normal Forms
DB Applications	Week 7	Database Integrity and Security
	Week 8	Database Application Development
	Week 9	Transaction Management
	Week 10	Indexing and Tuning
	Week 11	Data Warehousing and OLAP
	Week 12	Introduction to XML
	Week 13	Unit of Study Review

INFO2820

- INFO2820 is an advanced unit
- Enrolment requires Distinction in a previous unit, or special permission from SIT's Undergraduate Director
- Attend same lectures as INFO2120
- An additional seminar (Wednesday 1pm in SIT LT 123)
  - where extra material is covered,
    - eg logic-based query languages or NoSQL databases
    - also graph structures and recursion with databases
- Some different assessments
  - Some assignment and exam questions on extra advanced material, to replace some questions on normal material
  - But advanced students must master the normal material too!

COMP5138

- COMP5138 is a foundational unit of the Master of IT
  - Core body of knowledge a combination of INFO2120 and INFO3404
  - But focus more on the professional side of using database systems
- Attend same lectures as INFO2120 during 1st part of semester
  - separate lectures starting Week 10
  - Also: separate tutorial streams
  - Will be using commercial DBMS (Oracle 10g)
  - And towards end of semester, additional seminar on internals of DBMS systems (probably Monday, but tba)
- Some different assessments
  - Some assignment and exam questions on the extra material about DBMS internals and tuning

Recommended Textbooks

No required text book, but subject aligned with:

- M. Kifer, A. Bernstein, and P.M. Lewis: ***Database Systems: An Application-Oriented Approach***. Complete version, 2nd edition, Pearson/Addison Wesley, 2006.
  - will roughly follow this, but with additional material
  - copies are available in SciTech library & Coop bookshop

Other good books:

- J.D. Ullman, and J.Widom: ***A First Course in Database Systems***, 3rd ed., Prentice-Hall, 2008.
  - (more on XML and on theory)
- R. Ramakrishnan and I. Gehrke: ***Database Management Systems***, 3rd ed., McGraw-Hill, 2003.
  - (more technical and basis for the 3rd year INFO3404)

USyd E-Learning (Blackboard)

elearning.sydney.edu.au

- We will use Blackboard (USyd eLearning) to
  - Publish lecture slides
  - Link lecture recordings
  - Have tutorial handouts and background material available
  - For submission of Homework and Assignments
  - Forming Teams (signup sheets)
  - My Grades
  - Discussion forums
- Please use the discussion forums if you have questions!
  - All tutors and lecturers regularly check those
  - Answers can help the whole class

Assessment Package

- Assessment tasks
  1. Ongoing weekly progressive exercises:
     - Weekly marked homework / online tests ('best 8 out of 10') 10%
     - SQL 'Challenge' (online SQL tutorial) 10%
  2. Practical DB Project
     - DB Design, Schema and Programming (weeks 6, 8 and 12) 30%
  3. Exam
     - Examination (2 hours) 50%
- Marks will be published on eLearning
  - Report any errors or omissions within **10 days**! After that marks are fixed
- You must obtain at least **40% in all progressive marks** and **40% in the exam**, as well as an **overall mark of at least 50%**, to pass the unit!

DB Project

- Practical project about building a database application
  - from design to a working application
  - Groupwork: teams of 2 or 3 students
  - **Begin to form teams early!**
  - Scenario will be introduced next week in the lecture, discussion of progress with your tutors throughout the semester
- Deliverables of DB Project will be submitted online
  - No late work accepted,
  - and of course it has to be YOUR result! (this will be checked…)
  - In case of sickness on due date => apply for special consideration

Software

- **One** objective of the course is to give some hands-on experience with existing database software
  - This course includes both theoretical and practical work.
  - However note: The focus is on teaching the principles, not software!
- We will be using various software in the labs:
  - PostgreSQL 9 (COMP5138: Oracle 10g)
  - Java/JDBC or PHP
  - Advanced stream: Datalog and Python/Java
  - For SQL tutorials/feedback, we will use SIT's **Challenge** system
    - continuing set of exercises each week – please use it regularly
      http://challenge.it.usyd.edu.au/info2120/2012/
- **It is your responsibility to learn how to use it!**
  - Installed in the SIT labs
  - Documentation is available on-line

How Much Programming Is Involved?

- Although you do not need to be a hard-core programmer, programming skills will help with the practical assignment
  - it is not a programming course,
  - but covers database design, creation and usage
- However:
  The database project, part 3, assumes basic programming experience from a first year unit

Applying for Special Consideration

- In case of **Illness** or **Misadventure**
  - you can apply for special consideration
  - the application has to be lodged with your faculty **within 7 days**
- The first thing you should do:
  - **Let your lecturer know** (best by email and as soon as possible)
  - **Submit your quiz or assignment**
  - Get a certificate from a Professional Practitioner
  - Lodge the application for special consideration at your Faculty
- Please note: No special consideration for missing out a few days or being on holiday etc.
  - time management is your responsibility!

Email 101 – Use Common Sense

From: abcd1234@uni.sydney.edu.au
Subject: question about quiz 1 (INFO2120)

Dear Uwe,

My name is Tony Wong (sid: 123455678). I am a student in your info2120 class.

I am a bit confused about my quiz1 marks.
Can I please have a look at my quiz1 answer? I've done every question very carefully but my marks are not good – and I would like to know where I was wrong.

Regards,

Tony

Official Course Outline

- For further information, please check the official course outlines that are available on the web
  - e.g. Faculty's "Course and Unit of Study Portal" (CUSP)
    - http://cusp.eng.usyd.edu.au/students/view-unit-page/alpha/INFO2120
    - http://cusp.eng.usyd.edu.au/students/view-unit-page/alpha/INFO2820
    - http://cusp.eng.usyd.edu.au/students/view-unit-page/alpha/COMP5138
  - also linked as PDF on eLearning