Dr Greg Wadley

INFO 90002
Database Systems & Information Modelling

Week 01

Introduction to Subject

Introduction to Relational Databases

Designing and Implementing a Database

Structure of today's lectures

- first part: Introductions and admin
  - subject overview
  - staff and students
  - learning resources
  - assessment
- second part: Introduction to databases
  - database technology, past present and future
  - structured and unstructured data, tables
- third part: Designing and Implementing a Database
  - database lifecycle
  - data modelling
  - using SQL

Welcome!

- Welcome to INFO 90002
  Database Systems & Information Modelling

  Why this subject matters
  - database = key building block in many technology careers
  - database = one of the most widely-used technologies
    - embedded within most of the interesting ICT of today
      - social media, apps, websites, banking, scientific research ...
  - database = influence on culture
    - "The database is the major cultural form of the 21st century in much the same way as the novel was for the 19th and the film for the 20th. … While retaining the visual and temporal aspects of film, the modality of hypertext or of computer games eschews its linear modality for the modality of the database, in which objects are linked together but their assembly into a narrative experience is in the hands of the audience."
      Dourish and Mazmanian (2011), discussing Manovich (2002) *The Language of New Media*

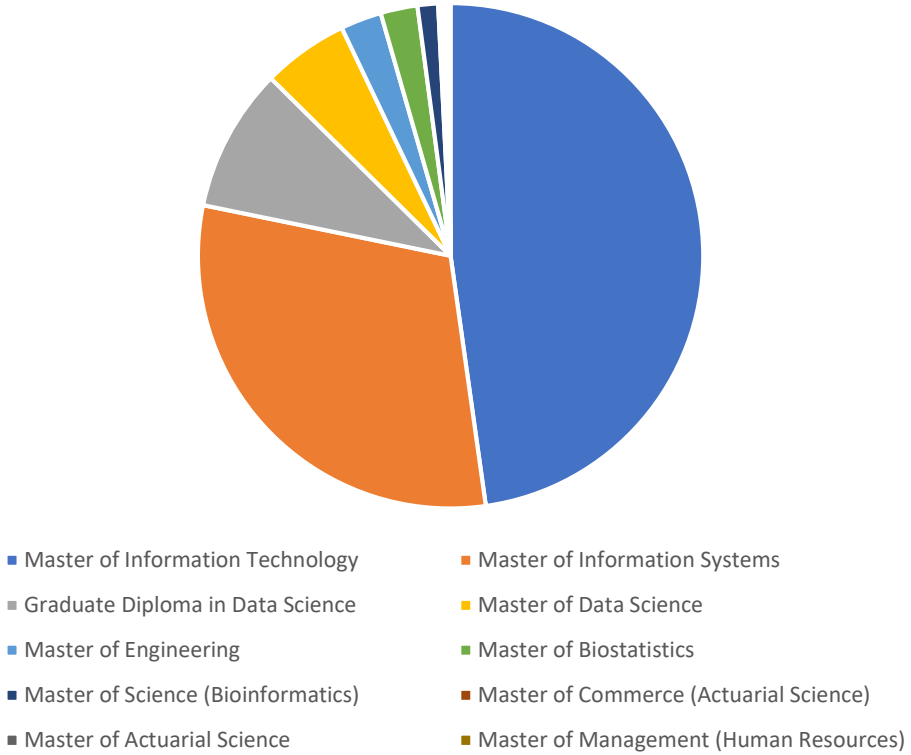
About the teaching staff

- Subject coordinators
  - Greg Wadley (lectures, assessment) and Farah Kahn (labs)
- Tutors (lab demonstrators)
  - Neven, Imairi, Ibrahim, Veronica, Nick
- Student representative
  - (you? we are seeking a volunteer)
- Interacting with staff
  - in class
  - office hours (choose a time today) room (tbd) DMcD building
  - LMS discussion forum
  - email for *personal* requests only

About you

- Your degree

Master of Information Technology	182
Master of Information Systems	116
Graduate Diploma in Data Science	35
Master of Data Science	21
Master of Engineering	10
Master of Biostatistics	9
Master of Science (Bioinformatics)	5
Master of Commerce (Actuarial Science)	1
Master of Actuarial Science	1
Master of Management (Human Resources)	1



- Range of backgrounds
  - existing IT knowledge
  - academic and work history
  - career directions
  - local and international

About the subject

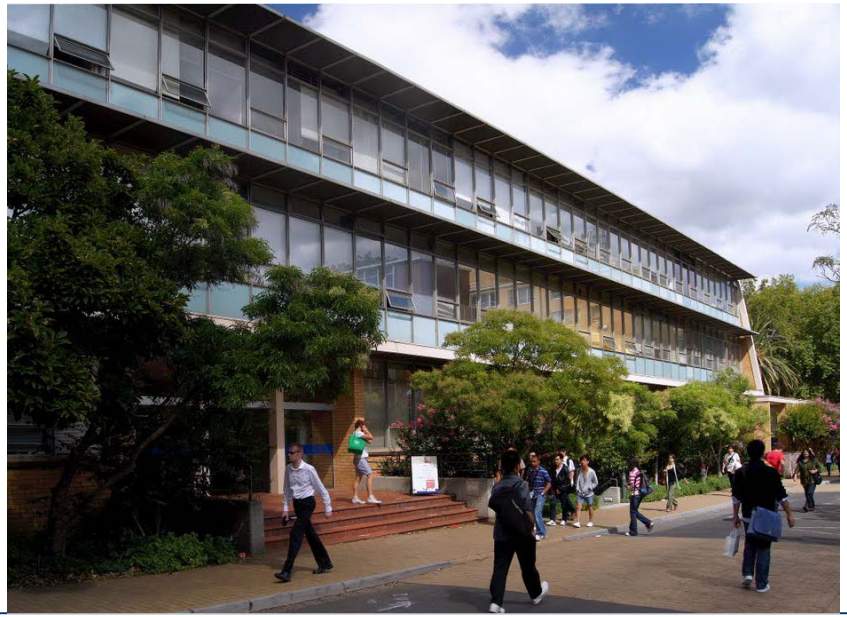
- Prerequisites, not-allowed subjects, credit for experience
  - Have you studied DB already? Don't study it again - get credit!
- Semester schedule: the big picture
  - weeks 1 to 6: designing and using a db (data modelling, SQL)
  - weeks 7 to 9: advanced topics
  - weeks 10 to 12: industry trends, assessment
- Assessment
  - assignment 1: data modelling (20%) .. groups of 3
  - assignment 2: SQL (10%) .. individual work
  - end of semester exam (70%, includes data modelling and SQL)
- How to succeed in this subject
  - practice especially DM and SQL skills
  - use all the learning resources provided

Semester schedule

Week	Lecture Hour 1	Lecture Hour 2	Lecture / Tutorial	Hoffer Chapter	Extra reading	Assessment
1	Intro to Subject	Intro to Databases	Designing a Database	1. Database Environment 2. Development Process	Hoffer video History of Database	
2	Data Modeling 1	SQL 1	Tutorial MySQL Workbench Setup SQL Set up Script	3. Modelling data 7. Introduction to SQL	SE Radio 'Relational Databases'	**Assignment 1 Released**
3	Data Modelling 2	SQL 2	Tutorial (DM/SQL 1)	5. Logical Design & Relational Modeling	Simsion ch 1, Hoffer video	
4	Data Modelling 3	SQL 3	Tutorial (DM/SQL 2)	8. Advanced SQL	Simsion chapter 3, Hoffer video	
5	Normalisation	Physical Design	Tutorial (SQL 3)	6. Physical DB Design & Performance	Simsion chapter 4, Kent (1983) Normalization	**Assignment 2 Released**
6	Data Dictionaries	wrapup and Q&A on part 1	Tutorial (normalization)	1. section on Metadata	Hoffer video MySQL data types	**Assignment 1 Due**
7	Databases in Applications	Web Applications	Tutorial (SQL 4)	10. The Internet Database Environment	O'Reilly video: Intro to Web	
8	Transactions & Concurrency	Distributed Databases	Tutorial (SQL 5)	14. Distributed Databases	Discussion on distributed databases	**Assignment 2 Due**
9	Database Administration	Security & Ethics	discuss Asst 1	13. Data and Database Administration	MySQL database administration Oracle database administration	
10	guest lecture	guest lecture	discuss Asst 2			
11	NoSQL Databases	NoSQL continued	Revision 1: you choose the topics		How Facebook stores data Martin Fowler on NoSQL	
12	Industry Trends	Wrapup and exam prep	Revision 2: you choose the topics			

Labs

- (also called “practicals” or “tutorials”)
- Only run in weeks 2 through 8 - not in week 1
- Not assessed, and attendance not recorded
- Tutor is there to help
- You can work in labs or at home
- Tuesday - Friday
- Lab exercises on LMS



Using database software

- We will use *MySQL* server and client in this subject
- You can use either:
  - the University's database server
    - accessible from labs, or from home via VPN
    - your assignment 2 must be able to run on this server!
  - or, your own computer
    - do lab exercises and assignments at home
- Server address: info90002db.eng.unimelb.edu.au : port 3306
    - your username and password will be given out in first lab
    - not available outside the university without a VPN
- If you want to use your own computer …
  - download MySQL from http://dev.mysql.com/downloads/mysql/
  - get both Server and Workbench

Resources on LMS