Dr Greg Wadley

INFO 90002
Database Systems & Information Modelling

Week 01

Introduction to Subject

Introduction to Relational Databases

Introduction to MySQL

Welcome!

- Welcome to INFO 90002
  Database Systems & Information Modelling

  Why this subject matters
  - key building block in many technology careers
  - one of the most widely-used technologies
    - embedded within most of the interesting ICT of today
      - social media, apps, websites, banking, scientific research ...
  - the defining cultural form of our time
    - "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*

Structure of today's lecture

- first hour: Introductions and admin
  - subject overview
  - staff and students
  - learning resources
  - assessment
- second hour: Introduction to databases
  - database technology, past present and future
  - how databases are designed, implemented and used
- third hour: Introduction to MySQL
  - client and server software
  - how to download and install
  - how to use in labs and at home

About the teaching staff

- Subject coordinator
  - Dr Greg Wadley
- Lab tutors
  - Ibrahim Al-Mahdi
  - Akter Hussain
- Student representative
  - (you? we are seeking a nomination)
- Interacting with staff
  - in class
  - office hours (we will choose a time) room 9.08 DMcD building
  - LMS discussion forum
  - email for *personal* requests

About you

- Your degree
  - 99 Master of Information Technology
  - 72 Master of Information Systems
  - 6 Engineering
  - 4 Biostatistics
  - (accurate on 25th July)

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

About the subject

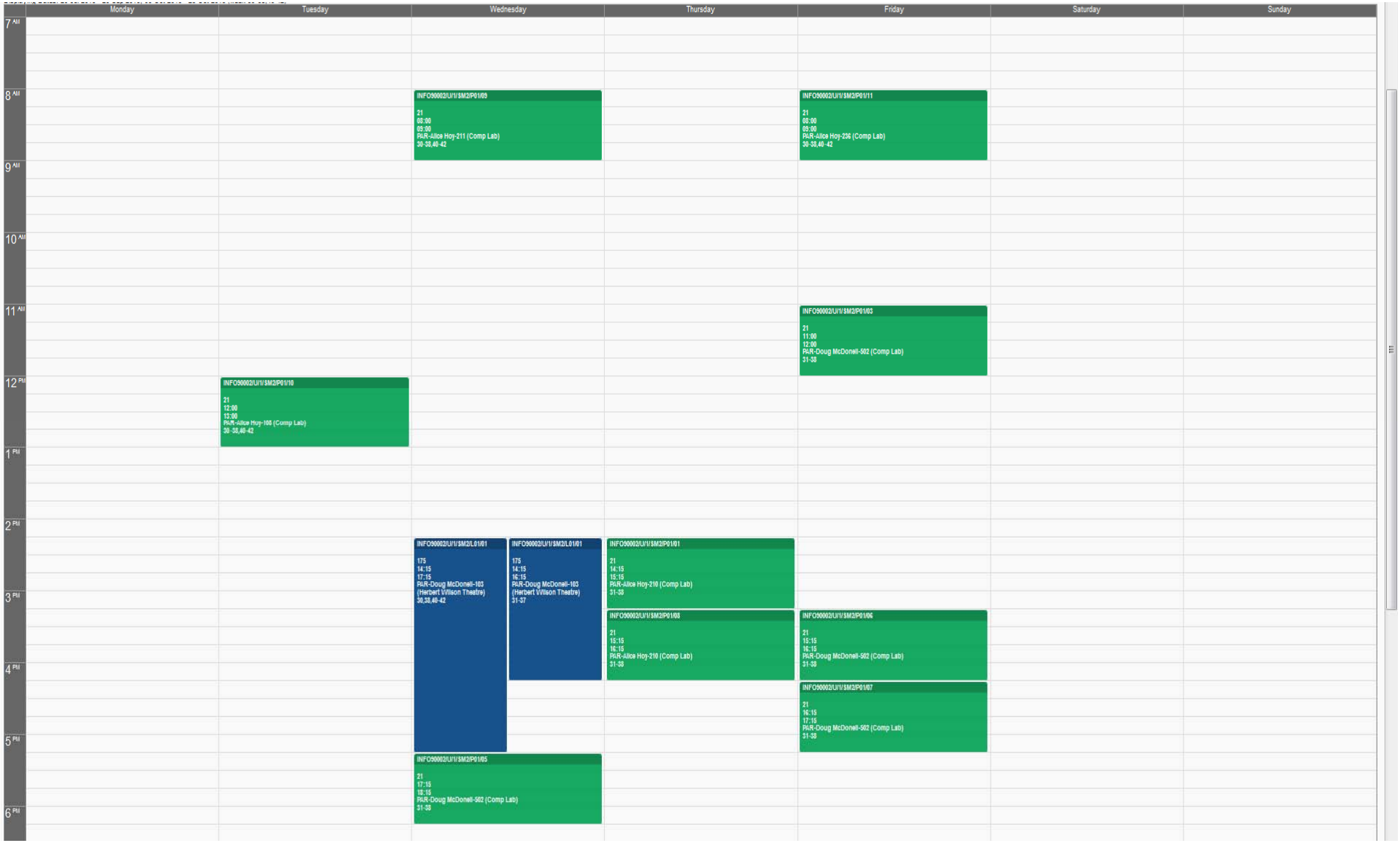
- Prerequisites, not-allowed subjects, credit for experience
  - Have you studied DB already? Can be credited for this subject!
- Semester schedule: the big picture
  - weeks 1 to 6: designing and using a db (data modelling, SQL)
  - weeks 7 to 9: advanced topics in using databases
  - weeks 10 to 12: application of databases, industry trends
- Assessment
  - assignment 1: data modelling (30%) .. groups of 2 or 3
  - assignment 2: SQL (10%) .. individual work
  - end of semester exam (60%, includes data modelling and SQL)
- How to succeed in this subject
  - take notes and ask questions, hands-on practice
  - use all the learning resources provided

Course content + pedagogical pattern

"Spiral" pedagogical pattern, see http://csis.pace.edu/~bergin/PedPat1.3.html#spiral

Week	Monday	Lecture 1	Lecture 2	Lab / Lecture 3	Hoffer	Extra reading	Homework due	Assessment
1	25 Jul	Intro to the course	Intro to databases	Intro to MySQL	h 1	Wikipedia, Hoffer video		
2	01 Aug	Designing a database	Implementing a database	lab: using MySQL		SE Radio 'Relational Databases'	noun-verb analysis	assignment 1 released
3	08 Aug	Data modelling 1	SQL 1	lab: data modelling	2 6	Simsion ch 1, Hoffer video	PhoneCo model [sample answer]	
4	15 Aug	Data modelling 2	SQL 2	lab: SQL skills 1	3 7	Simsion chapter 3, Hoffer video	Insurance model [sample answer]	
5	22 Aug	Data modelling 3	SQL 3	lab: SQL skills 2	4	Simsion chapter 4, SE Radio 'SQL'	Bus model [sample answer]	assignment 2 released
6	29 Aug	Normalization	Physical design	lab: SQL skills 3	5	Hoffer video, Kent (1983) Normalization	NetFilms model [sample answer]	
7	05 Sep	Databases in applications	Web apps	lab: SQL skills 4	8 14	O'Reilly video: Intro to Web		Asst 1 due
8	12 Sep	Transactions and concurrency	Distributed databases	lab: SQL skills 5	1	SE Radio 'CAP Theorem' Panel discussion at Google I/O 2013		
9	19 Sep	Database Administration	... continued	discuss Asst 1	1	Oracle DBA course overview		Asst 2 due
		mid semester break						
10	03 Oct	Applications: Graeme Port, Infinuendo	Applications	discuss Asst 2		the beer-and-diapers legend		
11	10 Oct	Applications	Applications	revision: you choose the topics				
12	17 Oct	Database Trends	Wrapup	revision: you choose the topics		how Facebook stores data Neo4j graph database demo Martin Fowler NoSQL video		

Weekly timetable

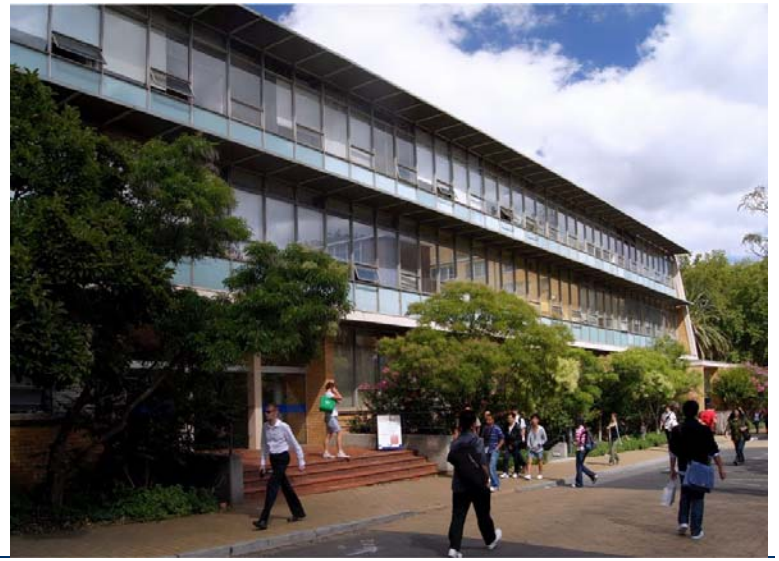


Labs

- Only run in weeks 2 through 8
- Not assessed, attendance not recorded
- You can work in labs or at home
- Tutor is there to help
- Alice Hoy and DMcD buildings
- Wed, Thurs, Fri
- Lab exercises

Lab exercises

- Week 2 = MySQL familiarization, server login
- Week 3 = data modelling
- Weeks 4 – 8 = SQL programming
  - part a: learn by running example SQL provided
  - part b: write SQL in response to a question
- Tutors are on hand to help
- SQL examples are from
  M Lacroix and A Pirotte (1976)
  Example queries in relational languages
  MBLE Tech. Note N107
  via
  Watson (2016) *Data Management*



Using database software

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

Quick tour of LMS