

# Course Review

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## ❖ COMP3311 Course Aims

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At the end of this course you should be able to:

- develop accurate, non-redundant data models;
- realise data models as relational database schemas;
- formulate queries via the full range of SQL constructs;
- use stored procedures and triggers to extend DBMS capabilities;
- write Python scripts that interact effectively with databases;
- analyze performance issues in relational database applications;
- understand the overall process of query evaluation;
- understand transactions and serializability

## ❖ Syllabus Overview

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### 1. Data modelling and database design

- Entity-relationship (ER) design, relational data model
- Relational theory (algebra, dependencies, normalisation)

### 2. Database application development

- SQL for querying, data definition and modification (PostgreSQL's version)
- extending SQL Queries, Functions, Aggregates, Triggers
- PostgreSQL, `psql` (an SQL shell), PLpgSQL (procedural SQL)
- SQLite, `sqlite3` (an SQL shell)
- Python3, Psycopg2, accessing data programmatically

### 3. DBMS theory/technology

- relational algebra, functional dependencies, normalization
- DBMS architecture, query processing, transaction processing
- performance tuning, indexes

## ❖ Assessment Summary

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Your final mark/grade will be determined as follows:

```
quizzes = mark for on-line quizzes    (out of 18)
ass1     = mark for assignment 1       (out of 12)
ass2     = mark for assignment 2       (out of 16)
ass3     = mark for assignment 3       (out of 14)
exam     = mark for final exam         (out of 40)
okExam   = exam >= 18                  (after scaling)
mark     = ass1 + ass2 + ass3 + quizzes + exam
grade    = HD|DN|CR|PS  if mark >= 50 && okExam
           = FL          if mark <  50 && okExam
           = UF          if !okExam
```

## ❖ Final Exam

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Thu 03 Dec, 12-hour exam time-frame, with ~ 3-hours worth of work

Questions ...

- ~60% practical, including SQL, PLpgSQL, Python, Psycopg2
- ~40% theory, including typed answers

What you have access to ...

- the exam paper (html)
- the Course Webcms3 site
- PostgreSQL/Python/Psycopg2 doco
- ... and the whole Web

## ❖ Revision

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Sources for revision material:

- Lecture Notes, Prac/Theory Exercises, Assignments
- [Fundamentals of Database Systems](#), Elmasri/Navathe
- [Database System Concepts](#), Silberschatz/Korth/Sudarshan
- [Database Management Systems](#), Ramakrishnan/Gehrke
- [Database Systems: Complete Book](#), Garcia-M/Ullman/Widom
- [Database Systems: App-oriented](#), Kifer/Bernstein/Lewis
- PostgreSQL/Python/Psycopg2 Documentation (to some extent)

## ❖ Assessment

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Assessment is about determining how well **you** understand the syllabus of this course.

If you can't **demonstrate your understanding**, you won't pass.

In particular, I don't pass people just because ...

- please, please, ... my parents will be ashamed of me
- please, please, ... I tried *really hard* in this course
- please, please, ... this is my final course to graduate
- please, please, ... I'll be excluded if I fail COMP3311
- please, please, ... if I fail this, I can't do COMP9xxx
- etc. etc. etc.

## ❖ Assessment (cont)

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Of course, assessment isn't a "one-way street" ...

- I get to assess you in the final exam
- you get to assess me in the Course Evaluation

MyExperience evaluations are online (via MyUNSW) NOW

Telling me good things is ok.

Telling me things to improve is very useful.



## ❖ Beyond COMP3311

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### COMP9313 Big Data Management

- handling data that won't fit in a DBMS on one machine

### COMP9315 Database Systems Implementation

- comprehensive study of DBMS internals

### COMP9318 Data Warehousing and Data Mining

- data summarisation/discovery techniques

### COMP9319 Web Data Compression and Search

- compression and searching algorithms, and XML

### COMP6714 Information Retrieval and Web Search

- finding information in unstructured text

## ❖ Some Thoughts ...

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You need to learn for life, not just the exam.

In particular, learn to find answers for yourself.

No single correct answer. (Solutions range from poor to excellent)

Take **pride** in your work. (Aim for quality, not just correctness)

## ❖ Finally ...

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Good Luck with the Exams ... and Life ...

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