Lectures:

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Tutorials, Practicals:

Bruce Lee Liong (BLL) email: bliong@ics.mq.edu.au
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Oracle DB administration:

Ian Cowell
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Time and place (Day Offering):

Lectures:
Monday (1 hour) 14  W5A T1
Wednesday (1 hour) 9  C5C T1
Thursday (1 hour) 14  W5A T1

Practicals (Weeks 2 – 6):
Monday 11  E6A119  GM
Monday 13  E6A114/E6A119  GM
Tuesday 15  E6A114/E6A119  MAB
Thursday 10  E6A114/E6A119  BLL

Tutorials (Weeks 7 – 13):
Monday 11  E7B 100  GM
Monday 13  E7B 200  GM
Tuesday 15  E7B 163  MAB
Thursday 10  X5B 136  BLL

Time and place (Evening Offering):

Lectures:
Tuesday (3 hours) 18  E7B T3

Practicals (Weeks 2 – 6):
Monday 18  E6A119  MAB
Monday 19  E6A114/E6A119  MAB
Wednesday 18  E6A119  BLL
Wednesday 19  E6A114/E6A119  BLL

Tutorials (Weeks 7 – 13):
Monday 18  E5B 131  MAB
Monday 19  E5B 131  MAB
Wednesday 18  E5B 131  BLL
Wednesday 19  E5B 131  BLL

Reading list:

There is no textbook for the first half of the course. In the second half, the textbook is Silberschatz (i.e. the same text as in COMP224).


The following is the list of references. References are only a recommended reading – students may use other books and other sources of information. Lectures and other components of the unit – not the list of references– define the expected knowledge, in particular with regard to the practical component of the unit – the project.
Most valuable source of information for students is the on-line software documentation. The students are expected to learn extensively from the documentation for Oracle 8i Server, Oracle 8i Java Products and for JDeveloper. Oracle’s documentation for Java database application development includes the following titles:

- Application Developer’s Guide
- Java Developer’s Guide
- JDBC Developer’s Guide and Reference
- SQLJ Developer’s Guide and Reference

COMP326 students are expected to know object programming, most likely C++. COMP326 uses Java for studies of database application development and in the project. Java for database development is the subject of some lectures and tutorials/practicals. Any additional Java programming skills demanded by the project have to be obtained through self-education. To this aim, the following book is recommended:


**Unit objectives:**

The purpose of this unit is to:

1) Provide students with the knowledge and skills necessary for the **design and implementation of object-oriented (OO) client/server (C/S) enterprise information systems**. To this aim the unit expects students to have prior knowledge from COMP227 (*Requirements Analysis and System Design*). In particular the students must have a sound understanding of system modeling using Unified Modeling Language (UML).

2) Explain to students **advanced database topics**, including support for objects, transaction management, distributed system architectures and new database applications (such as data warehouses and multimedia databases). To this aim the unit expects students to have prior knowledge from COMP224 (*Database Systems*).

The technology emphasis in this unit is on large-scale information systems and on software development methods, tools and processes. The unit is **project-based**. The project employs an
iterative and incremental approach. Each iteration of the project creates an interim deliverable product that constitutes an incremental improvement over the previous iteration.

The project concentrates on an information system back-end and on middleware, i.e. on database and application servers. Middleware is understood as a set of software services that act as servers to the user layer and clients of the database layer. This emphasis on the database server and middleware introduces a sharp distinction between this unit and the other project-based unit – COMP331 (Software Engineering), which concentrates on the front-end client solutions and on the programming language environments.

**Assessment:**

**Project (30%):**

<table>
<thead>
<tr>
<th>Iteration</th>
<th>Percentage</th>
<th>Convenor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10%</td>
<td>Leszek Maciaszek</td>
</tr>
<tr>
<td>2</td>
<td>10%</td>
<td>Gillian Miller</td>
</tr>
<tr>
<td>3</td>
<td>10%</td>
<td>Steve Cassidy with Peter Busch assistance</td>
</tr>
</tbody>
</table>

Each iteration of project must be submitted both electronically and as hard-copy documents. The rules governing electronic submission are formulated separately for each iteration. Hard-copy documents need to be submitted in the COMP2326 Assignment Boxes in building E6A ground floor. They should be well presented and include the COMP326 Project Cover Sheet.

Late submissions will be discounted by 1 mark per day after the deadline.

**Final examination (70%)**

Students must perform satisfactorily in the final examination as well as in the project in order to pass. Substantial part of the final examination will test the knowledge that the students are expected to gain from doing the project.

Please refer to regulations concerning final examinations and special considerations on the Department's Web Site.

**Weekly schedule:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Tutorials/Practicals</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Mar 4)</td>
<td>Database Application Development using UML and Java. Maciaszek (Ch. 5.2, 6.1, 8.1, 8.4) Oracle’s Application Developer’s Guide – Fundamentals (Part 1) Oracle’s Java Developer’s Guide (Ch. 1) White (Ch.1)</td>
<td>No tutorials/practicals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lectures - Leszek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 (Mar 11)</td>
<td>Java Design and Programming. Eckel (Ch. 1 – 10)</td>
<td>Practical:</td>
<td></td>
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<tr>
<td></td>
<td>Lectures - Gillian</td>
<td>(1) Working with JDeveloper</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(2) Your first Java program</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(HelloDate.java from Eckel, Ch.2)</td>
<td></td>
</tr>
<tr>
<td>3 (Mar 18)</td>
<td>JDBC Design and Programming. Eckel (Ch. 11) Lakshman (Ch. 3 – 4)</td>
<td>Practical:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lectures - Gillian</td>
<td>(1) Getting Started with JDBC (Ch.2 from Oracle’s JDBC Developer’s Guide and Ref.)</td>
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<tr>
<td></td>
<td></td>
<td>(2) Compiling and running JdbcTemplate.java and JdbcTemplateCheckup.java.</td>
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<tr>
<td>Date</td>
<td>Lectures</td>
<td>Topic</td>
<td>Practical:</td>
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<tr>
<td>4 (Mar 25)</td>
<td>Leszek</td>
<td>COMP326 Project – Explanation of the approach, framework, provided code, etc. Advanced Topics in Database Application Development using UML and Java.</td>
<td>Practical: (1) Querying and Processing the Results; Compiling and running JdbcTest.java (Ch.3 from Oracle’s JDBC Developer’s Guide and Ref. (2) Basic JDBC Tutorial (White, Ch.2)</td>
</tr>
<tr>
<td>6 (Apr 22)</td>
<td>Leszek</td>
<td>Developing ORDB Applications with SQL’1999 Data Types.</td>
<td>Practical: Programming with SQLJ</td>
</tr>
<tr>
<td>7 (Apr 29)</td>
<td>Steve</td>
<td>Transactions</td>
<td>Tutorial – Mapping to SQL’1999 Data Types (Oracle)</td>
</tr>
<tr>
<td>8 (May 6)</td>
<td>Steve</td>
<td>Concurrency Control.</td>
<td>Tutorial – Transactions in Oracle</td>
</tr>
<tr>
<td>9 (May 13)</td>
<td>Steve</td>
<td>Recovery System</td>
<td>Tutorial – Concurrency Control (Oracle)</td>
</tr>
<tr>
<td>10 (May 20)</td>
<td>Peter</td>
<td>Database System Architecture.</td>
<td>Tutorial – Transaction Recovery (Oracle)</td>
</tr>
<tr>
<td>11 May 27</td>
<td>Peter</td>
<td>Advanced Querying and Information Retrieval.</td>
<td>Tutorial – Database System Architecture (textbook exercises)</td>
</tr>
<tr>
<td>12 June 3</td>
<td>Peter</td>
<td>Advanced Data Types and New Applications</td>
<td>Tutorial – Advanced Querying and Information Retrieval. (textbook exercises)</td>
</tr>
<tr>
<td>13 June 10</td>
<td>Peter</td>
<td>Advanced Transaction Processing</td>
<td>Tutorial – Advanced Data Types and New Applications (textbook exercises)</td>
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</tbody>
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Easter Break (29 March – 14 April)

5 (Apr 15) Lectures - Gillian

6 (Apr 22) Lectures - Leszek

7 (Apr 29) Lectures - Steve

8 (May 6) Lectures - Steve

9 (May 13) Lectures - Steve

10 (May 20) Lectures - Peter

11 May 27 Lectures - Peter

12 June 3 Lectures - Peter

13 June 10 Lectures - Peter

Examinations (19 June – 3 July)

Second semester starts (29 July)