

## INFORMATION SECURITY GROUP Course Specification 2013-14

<b>Code:</b>	IY5604	<b>Course Value:</b>	0.5	<b>Status:</b>	Option
<b>Title:</b>	Database Security			<b>Availability:</b>	Spring term
<b>Prerequisites:</b>	Core courses			<b>Recommended:</b>	
<b>Co-ordinator:</b>	Chez Ciechanowicz				
<b>Course Staff</b>	Chez Ciechanowicz plus an invited industry expert on Oracle Security				
<b>Aims:</b>	<p>This course will:</p> <ul style="list-style-type: none"> <li>▪ cover several aspects of database security and the related subject of concurrency control in distributed databases.</li> <li>▪ discuss methods for concurrency control</li> <li>▪ discuss methods used in failure recovery in distributed databases</li> <li>▪ consider how security can be established within relational databases</li> <li>▪ examine the conflicting interactions between security requirements and concurrency control.</li> <li>▪ examine how access control policies can be adapted to relational databases.</li> </ul>				
<b>Learning Outcomes:</b>	<p>On successful completion of the course students will be able to:</p> <ul style="list-style-type: none"> <li>• perform analysis of arbitrary transaction histories</li> <li>• construct transaction histories that have a range of desirable properties</li> <li>• analyse transactions from a serialisability, scheduling, and recovery perspective</li> <li>• examine critically a number of approaches used to achieve multi-level security whilst still permitting the concurrent execution of transactions.</li> <li>• understand why confidentiality is so difficult to achieve within a statistical database</li> <li>• understand the implications that security and its administration have in the context of commercial relational databases such Oracle.</li> </ul>				
<b>Course Content:</b>	<ul style="list-style-type: none"> <li>• Transaction Processing</li> <li>• Serialisability Theory</li> <li>• Two Phase Locking</li> <li>• Centralised Recovery</li> <li>• Distributed Recovery</li> <li>• Security and Security Models</li> <li>• Relational Database Security</li> <li>• Statistical Database Security</li> <li>• Concurrency Control and Multi-Level Security</li> <li>• Oracle Security</li> </ul>				
<b>Teaching &amp; Learning Methods</b>	<p>Lectures delivered by industry experts &amp; ISG staff. Optional exercise sheets to reinforce learning. Use of course website with teaching materials, links, and bibliography.</p>				
<b>Key Bibliography:</b>	<p>P.A. Bernstein, V. Hadzilacos and N. Goodman, <i>Concurrency Control and Recovery in Database Systems</i>, Addison-Wesley, 1987.</p> <p>S. Castano, M. Fugini, G. Martella, P. Samarati, <i>Database Security</i>, Addison Wesley, 1994.</p> <p>D. Gollmann, <i>Computer Security</i>, John Wiley &amp; Sons, 1999.</p>				
<b>Formative Assessment and Feedback:</b>	<p>Students will be expected to hand-in solutions to exam-style questions at two points during the semester. These will be assessed and returned to the students. This formative feedback will be complemented by other exercise sheets. Solutions to these will be discussed at the end of lectures.</p>				
<b>Summative Assessment:</b>	<p><b>Exam</b> 100(%) This course is assessed solely by written examination consisting of a two-hour-exam. (3 out 5 questions) <b>Coursework</b> 0(%) Coursework does not contribute to the final assessment for this course.</p> <p><b>Deadlines:</b> The written examination will be held in the Summer term</p>				

The information contained in this course outline is correct at the time of publication, but may be subject to change as part of the Department's policy of continuous improvement and development. Every effort will be made to notify you of any such changes.