



BUSINESS SCHOOL
Te Kura Pakihi

COMP 101: Foundations of Information Systems

COURSE OUTLINE

Semester Two, 2023

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Paper Description and Aims

Information systems and information and communication technology (ICT) play indispensable roles in modern society. Almost every facet of our lives is influenced by some form of ICT. COMP 101 serves to introduce you to the basic concepts of computing and information systems, preparing you for later study in such disciplines. By the end of COMP 101, you should understand how information is encoded for computing, and how this shapes your approach to applying computational solutions to problem solving. You will get hands-on experience in labs with methods for storing and manipulating databases, and see how these fit into the larger world of developing applications. Finally, you will be exposed to, and discuss the relative merits of, current and emerging trends in ICT and how these impact on the development of information systems now and in the near future.

COMP 101 operates under a typical paper structure – lectures and labs will be used to present and discuss material relevant to the paper. Within these sessions, there will be opportunities for discussion, and where appropriate, classes may draw on more interactive techniques to support the content, or refer to external online content for context.

Learning Outcomes

Upon successful completion of this paper, you should be able to:

1. explain the distinctions between data and information
2. understand basic concepts of computational approaches to information processing (e.g. binary encodings, algorithms and complexity, tool chains to develop computer programs)
3. understand elementary processes of data collection, and identify basic issues relating to data quality
4. understand basic concepts of modelling, implementing and using relational databases, and be able to read and write basic SQL statements to manipulate relational databases
5. explain contemporary trends such as security and ethics, big data, machine learning, cloud computing, and their implications for individuals and organisations

Teaching Staff

Paper Coordinator and Lecturer

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Labs

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Other staff will be present in labs on a more ad hoc basis for support and general discussion. You will be introduced to these staff during your lab times.

Course Delivery

Every week students must attend *two 50 minute lectures* and a *single 110 minute lab* (see '[Locations and Times](#)' for details of days, times, and rooms):

- **Lectures** present the key conceptual material through discussion and interaction between teaching staff and students. Multimedia and class exercises may be used to supplement the presentation. Lectures are occasionally supported by readings as indicated on Blackboard.
- **Labs** are interactive, collaborative sessions in which students attempt to cement concepts presented at lectures with their peers in a supportive environment. Labs are also used to discuss and work on assignment tasks.

You are expected to attend the lab in your assigned lab stream. You are also welcome to attend more than one lab stream if you feel that you need more time to focus on the concepts discussed in a given lab as long as spare seats are available in the additional lab stream you are attending.

The [Course Calendar](#) (page 6) details semester dates, lecture topics, labs, and assessment related scheduling information. Note that this calendar may change as the course proceeds. These will be announced at lectures and detailed on Blackboard.

Students are required to prepare for and attend all classes to gain full benefit from the course.

These activities should be prepared for by reviewing information detailed on Blackboard and completing any assigned readings. Students unable to attend a lecture are expected to catch up on missed material. Unless stated otherwise, all aspects of the course are examinable (see below).

Locations and Times

Lectures and labs are held in the following locations:

- Lectures – Monday’s lecture will be held in [Quad 2](#) (located on the 1st Floor of the Geology Building). Tuesday’s lecture will be held in [Tower Block G07](#) (located on the ground floor of the College of Education).
- Labs – The labs will be held in OBS 1.18 (1st Floor of the Otago Business School), OBS 3.27 (3rd Floor of the Otago Business School), or [Arts CAL](#) (Richardson Building, Ground Floor).

Your personal timetable is in [eVision](#) – please check that for your streamed lab time and location.

	Monday	Tuesday	Wednesday	Thursday	Friday
9am				Lab - A3 (ACAL)	
10am				Lab - A4 (ACAL)	
11am				Lab - A5 (OBS 3.27)	
12pm					
1pm			Lab - A1 (ACAL)		
2pm			Lab - A2 (OBS 1.18)		
3pm					
4pm	Lecture 1	Lecture 2			
5pm					

Figure 1 Lecture and lab timetable. Attend one class of each colour each week.

Expectations and Workload

The teaching team (see ['Teaching Staff'](#)) are committed to creating the best possible environment to facilitate student learning. However, learning is a joint activity that requires active participation from the learner. Students are therefore expected to attend and participate in all facets of the course. This includes activities such as revising material, completing assigned work, spending extra time researching difficult concepts, in addition to participating in lectures, labs, and assessments.

COMP 101 is worth 18 points, which equates to spending 12 hours per week on the course (in accordance with University guidelines). This calculation includes the mandatory contact hours of lectures and labs totalling 4 hours per week. The remaining 8 hours should be used for reading (assigned and personal research), lab preparation and completion, and course revision.

Course Learning Resources

Blackboard

Blackboard <https://blackboard.otago.ac.nz/> provides you with access to course materials, class notices, and resources. Blackboard is used to email the whole class, so it is important that you check your student email and *Blackboard* regularly.

More general-purpose information related to your studies can be found on Blackboard under the "Study-Related Information" section.

Assessment

All material presented is assessable (except where stated otherwise) through any assessment component. All relevant assessment information such as due dates and times, content, guidelines and so on will be detailed on Blackboard and, where appropriate, discussed at lectures. *Students are responsible for ensuring that they are aware of this information, keeping track of their own progress, and catching up on any missed classes.*

Assessment	Due date	% of final grade	Requirements to pass this paper
Lab assessments	In labs: weeks 10-13 and 15-20	(best 10 out of 11 labs) $10 * 2 = 20$	(see Course Requirements)
Blackboard Test 1	Week 33	20	
Blackboard Test 2	Week 40	20	
Practical Test 1	Week 34	20	(see Course Requirements)
Practical Test 2	Week 41	20	(see Course Requirements)

Course Requirements

COMP 101 has the following paper hurdle *requirements*.

1. You must participate in six or more lab assessments (out of 11).
2. You must score an **average of 40%** over the two practical tests.

Students *failing to achieve either of the above requirements will fail the paper regardless of your overall assessment performance.*

Special Consideration

On certain grounds (e.g., illness or bereavement), special consideration on internal assessment may be given. Special consideration is given on a case-by-case basis and *must be requested from the course coordinator prior to the assessment deadline.*

Course Calendar

Week	Date	Lectures	Labs	Assessment/Notes
28	10-Jul -	1 Information theory (I)	1 Information and entropy	
	14-Jul	2 Information theory (II)		
29	17-Jul -	3 Data modelling (I) - entity relationship diagrams	2 Data modeling	
	21-Jul	4 Data modelling (II) - the relational model		
30	24-Jul -	5 Structured Query Language (SQL) (I)	3 Building a relational database	
	28-Jul	6 Structured Query Language (SQL) (II)		
31	31-Jul -	7 Structured Query Language (SQL) (III)	4 Inserting and deleting data	
	04-Aug	8 Structured Query Language (SQL) (IV)		
32	07-Aug -	9 Database application architecture	5 Querying data (I)	
	11-Aug	10 Big Data and "NoSQL" databases		
33	14-Aug -	11 Networks and the internet	6 Querying data (II)	Blackboard test 1 (20%)
	18-Aug	12 Human-computer interaction		
34	21-Aug -	13 Security (I)	7 Practical test during lab	Practical test (20%)
	25-Aug	14 Security (II)		
35	28-Aug - 01-Sep	<i>Mid-Semester Break</i>		
36	04-Sep -	15 Data science, machine learning and AI (I)	8 Implementing a database client	
	08-Sep	16 Data science, machine learning and AI (II)		
37	11-Sep -	17 Data representations (I)	9 Data representations	
	15-Sep	18 Data representations (II)		
38	18-Sep -	19 Data representations (III)	10 Data representations (cont.) and algorithms	
	22-Sep	20 Algorithms (I)		
39	25-Sep -	21 Algorithms (II)	11 Algorithms (cont.)	
	29-Sep	22 Algorithms (III)		
40	02-Oct -	23 Executing algorithms (I) - machine architectures	12 Compilers, linkers and interpreters	Blackboard test 2 (20%)
	06-Oct	24 Executing algorithms (II) - programming languages and compilation		
41	09-Oct -	25 ICT & ethics	13 Practical test during lab	Practical test (20%)
	13-Oct	26 Wrap-up		

Disclaimer

While every effort is made to ensure that the information contained in this document is accurate, it is subject to change. Changes will be notified in class and via Blackboard. Students are encouraged to check Blackboard regularly. It is the student's responsibility to be informed.