



**BUSINESS SCHOOL**  
Te Kura Pakihi

**INFO 201**  
**Developing Information Systems 1**  
First Semester, 2023

**COURSE OUTLINE**

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# 1 Executive summary



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Mr. Mark George (labs)

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What	When	Where
Lectures	Tuesday 1pm–2pm Thursday 4pm–5pm	OBS G02 OBS 117
Labs	Monday 2pm–4pm	OBS 326/327
<i>special arrangements</i>	Friday noon–2pm	North CAL
<i>for Good Friday labs*</i>	Friday 2pm–4pm	North CAL
Project Milestone 1 (10%)	Friday 24 March at 5pm	(entire project counts for 50%)
Project Milestone 2 (20%)	Friday 28 April at 5pm	
Project Milestone 3 (20%)	Friday 26 May at 5pm	
Final Exam (50%)	(TBA)	(TBA)

\* See [Section 5](#).

Labs start in the *first* week.

**TO PASS INFO 201 YOU MUST**  
achieve a total overall mark of at least 50%, AND  
score at least 40/100 in the final exam, AND  
participate in at least *seven* of labs 2 through 11 (terms).

Continue reading for the full, gory details! 😊

## 2 Paper description and aims

Software runs most of the modern world, from business and science to mobile apps and cars. Two key phases of information system development are (i) accurate discovery and analysis of user requirements; and (ii) design, modelling, and implementation of systems that satisfy these requirements. In INFO 201 you will learn how to capture, document, analyse, and model user requirements, and how to then implement them in software. INFO 201 focuses on business process modelling, entity relationship modelling, and the Unified Modelling Language (UML) to capture and document user requirements, and Java for implementation. INFO 201 also includes a practical project to give you experience in designing and building an information system. Together, INFO 201 and INFO 202 equip you with the skills and knowledge to both create software and to manage the software development process for many different types of organisations.

## 3 Learning outcomes

Those who successfully complete INFO 201 should be able to:

1. explain the system development life cycle (SDLC) and the differences between traditional and agile software development methodologies;
2. carry out analysis of information system requirements, and design and construct basic information systems using a modern programming language, frameworks, and tools;
3. capture and interpret business processes in a standard notation;
4. explain the trade-off between buying and building an information system; and
5. read and write SQL queries.

You will also be expected to improve on other important skills such as problem solving, critical thinking, self-awareness, and interpersonal skills.

INFO 201 is essential preparation for INFO 202 in second semester. INFO 202 carries on from where INFO 201 finishes, focusing mainly on how to construct information systems in code.

## 4 Teaching staff



**Paper coordinator & lecturer: Dr. Nigel Stanger**

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Contact Dr. Stanger with any questions about INFO 201 content, administrative enquiries, or requests for late submission or special consideration of internal assessment.



**Lecturer: Dr. Daniel Alencar da Costa**

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Contact Dr. Alencar da Costa with any questions about INFO 201 content, especially for the lectures that he presents.



**Lab tutor: Mr. Chris Edwards**

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Contact Mr. Edwards for help with INFO 201 labs or internal assessment.



**Lab tutor: Mr. Mark George**

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Contact Mr. George for help with INFO 201 labs or internal assessment.

You are welcome to contact teaching staff at any time. We follow an “open door” policy: if our door is open, we are probably available; if closed, probably not. We will make our best effort to be available during advertised office hours, but this may not always be possible. You are welcome to email us to ask questions or to arrange a meeting.

## 5 Delivery

You should attend all your timetabled lectures and labs, and prepare by reading or watching any assigned material. Your INFO 201 timetable will appear in your eVision portal if you enrolled before Friday 24 February, and timetable details will also be posted on [Blackboard](#).

All teaching material for INFO 201 will be made available through [Blackboard](#) >> INFO201 >> Documents where possible. Please check [Blackboard](#) regularly for announcements, updates, and corrections.

The planned teaching schedule is at the end of this document. The schedule is not fixed and may be subject to change during the semester (also see [Section 5.2](#)). The latest version can always be found on [Blackboard](#). Any major changes will be made in full consultation with the class.

**Lectures** present the key conceptual material. You will attend two 50 minute lectures each week: Tuesday 1pm–2pm in OBS G02 and Thursday 4pm–5pm in OBS 117. We will make our best effort to upload lecture slides to [Blackboard](#) beforehand, but this may not always be possible. We will record and publish all lectures through Otago Capture, normally within 24 hours.

### IMPORTANT

**Labs start in the *first* week.**

**You must participate in at least *seven* of labs 2 through 11 (see [Section 7.4](#)).**

**There are special arrangements for Good Friday (Friday 7 April)—see below.**

**Labs** are interactive, collaborative sessions where you will cement concepts learned in lectures by carrying out work similar to that required for the project (see [Section 7.1](#)). Material covered in labs may go beyond that covered in lectures and is examinable. The lab exercises will initially

provide detailed instructions, but as the semester progresses we will reduce the level of detail in the instructions, in order to foster individual problem-solving and critical thinking.

It is in your best interest to attend labs, as you will have guaranteed access to help from teaching staff. Note that labs start on time, often with a discussion of topics relevant to the lab/project, so please try to arrive on time. If you are unable to complete a lab exercise, refer to [Section 7.5](#).

You will attend one 110 minute lab each week: Monday 2pm–4pm in OBS 326/327, Friday noon–2pm in North CAL, or Friday 2pm–4pm in North CAL. You should attend your timetabled stream, but you are allowed to attend other streams. If the lab is particularly busy, priority will be given to students timetabled into that stream.

We have created two one-off streams to cover the labs that fall on Good Friday (Friday 7 April): Monday 3 April 10am–noon and Wednesday 5 April 11am–1pm, both in OBS 326/327. You are also welcome to attend any other lab stream during that week.

## 5.1 Teaching resources

INFO 201 uses free, open source tools running on a Linux desktop installed in OBS 326/327 and North CAL (the tools are also on the student desktop, but may be configured differently). You should have 24 hour access to both rooms and can use them at any time they are not being used for teaching. You can also install the tools on your own Linux, macOS, or Windows computer, which is a useful thing to do in any case (see [Section 5.2](#)). We will provide instructions on how to install the tools.

There is no prescribed textbook for INFO 201, but there are many online resources and tutorials. To improve your Java programming skills we recommend the following books:

- *Java: The Complete Reference*, 12th edition, Herbert Schildt, McGraw-Hill (2021).
- *Simply Java programming—An Application-Driven Tutorial Approach*, Deitel, Deitel, Listfield, Yaeger, and Zhang, Pearson (2004).

## 5.2 Contingency plans

While it is unlikely that we will need to move to online teaching, there is a reasonable chance that you or one of the teaching staff might need to self-isolate. As a precaution, ensure that you have installed all required software on your personal computer, especially if you do not have a good internet connection, so that you can continue to work online if necessary. We have put in place the following contingency plans:

- All lectures are recorded, so we can easily switch to online-only if needed. Face-to-face lectures may move to a different room in order to provide physical distancing.
- Lab exercises can be completed in your own time on your own computer, with scheduled help sessions via Zoom. Lab participation for Terms (see [Section 7.4](#)) will be recorded by pushing completed lab work to GitBucket.
- If you have problems with your lab or project work, push to GitBucket and email us (this is often how it works under normal circumstances anyway).
- Ad hoc Zoom sessions can be organised as necessary.

## 6 Expectations and workload

The teaching team (see [Section 4](#)) are committed to creating the best possible environment to facilitate your learning, but learning is a joint activity that also requires *your* active participation.

### What you can expect of us:

- We will keep you informed of important developments through announcements both in class and on [Blackboard](#). Critical notices will also be sent to your student email address.
- We will answer queries within a reasonable timeframe. Typically this will be the same day for urgent queries, and within 48 hours for non-urgent queries. **Closeness of an assessment deadline does not automatically make a query urgent.** Please include your name and student ID in all correspondence to facilitate any follow-up.
- We will maintain regular contact with class reps, and will consult the class before changing the content or structure of the assessment schedule.
- We will mark internal assessments within a reasonable timeframe, typically within two to three weeks of the submission deadline, depending on other commitments.
- We will make our best effort to be available during advertised office hours, depending on other commitments. We will make alternative arrangements where necessary, and operate an “open door” policy at other times (see [Section 4](#)).

### What we expect of you:

- You will read the Course Outline. 😊
- You will keep up to date with announcements and regularly check your student email.
- You are familiar with the relevant prerequisite material. While we can provide links to revision materials, it is your responsibility to make effective use of these.
- You will prepare for, attend (on time), and actively participate in as many of the lecture and lab classes as you can (also see [Section 7.4](#) regarding lab participation for terms).
- You will seek out relevant supplementary material. Independent learning is normal in industry. Simply reading or watching videos about a topic is not enough to truly understand it, however; you will be most successful when you can *apply* your knowledge.
- You will manage your time effectively and not leave things to the last minute. This includes working on lab and project tasks in your own time outside scheduled classes.
- You will submit all project milestones on time (see also [Section 7.5](#)) and to the required standard (see [Section 7.2](#)). Milestone deadlines have already been set (see [Section 7](#)); work submitted late without prior arrangement will be penalised as described in [Section 7.1](#).
- You will follow the University’s academic integrity guidelines (see [Blackboard](#) [INFO201](#) [Information](#)).

The expected workload for INFO 201 is about 180 hours of work per student for the whole semester, or about 12 hours per week on average. This will of course vary from week to week and from person to person; remember that 180 hours is a *guideline*, not a target. A rough model of how this could be broken down is as follows (see also [Section 5](#)):

<b>Contact hours</b>	Lectures	$26 \times 1$	=	26 hours
	Labs	$13 \times 2$	=	26 hours
<b>Assessment</b>	Project	$14 + 28 + 28$	$\approx$	70 hours
	Final exam		=	3 hours
<b>Personal study</b>	Lectures & labs	$26 + 13$	$\approx$	40 hours
	Final exam		$\approx$	15 hours
<b>TOTAL:</b>				$\approx$ 180 hours

## 7 Assessment

All material presented in INFO 201 (except where stated otherwise) is examinable in the project and final exam. All important assessment information such as deadlines, content, guidelines, and so on will be discussed in lectures and, where appropriate, detailed on [Blackboard](#). You are responsible for ensuring that you are aware of this information, for keeping track of your own progress, and for catching up on any missed classes.

### 7.1 Project

The internal assessment for INFO 201 comprises a semester-long project to document, design, and build an information system. During the project you will identify required functionality and business rules, model aspects of the system using various diagramming notations, and build part of the system in Java. See the project specification documents on [Blackboard](#) for further details.

The project is a critical part of INFO 201, as it enables you to put into practice the concepts you learn in the paper. There may also be questions in the final exam that relate to concepts covered in the project. We will continue with a similar project in INFO 202.

The project counts for **50%** of your final mark, and will be submitted in three milestones, due on **Friday 24 March at 5pm** (10%), **Friday 28 April at 5pm** (20%), and **Friday 26 May at 5pm** (20%), respectively. Late submissions will be penalised 15% of the milestone total mark per day<sup>1</sup> unless there are exceptional circumstances (see Section 7.5). **Being sick for the last few days before a milestone deadline is not necessarily considered an exceptional circumstance.** You will have several weeks to work on each milestone, so plan accordingly and do not leave it to the last minute. Each milestone will be marked during lab classes in the week following submission.

### 7.2 Milestone submission requirements

We have minimum expectations for the quality of submitted milestones. **Code that does not compile will not be marked** (this includes PlantUML diagram code). Each milestone may also specify a minimum required amount of content or functionality, which will be detailed in the milestone's specification document. **Submissions that do not reach the minimum requirements will not be marked.**

You are required to use Git and the [INFO 201 GitBucket repository](#) to save the state of your project at regular intervals (i.e., every time you complete a significant change). This will help

<sup>1</sup>This works out to 1.5 marks per day for milestone 1 and 3 marks per day for milestones 2 and 3. Submissions that are seven days late will thus score zero.



you develop the habit of following this good software engineering practice, and will also give us confidence that your work is your own. Incremental progress for each milestone submission must be visible in your Git history. **Milestone submissions that do not have a record of incremental updates over a reasonable period of time will not be accepted.** Inform us immediately if you have any problems with your Git repository. We follow a “no surprises” policy, meaning that you need to tell us about problems when they occur, not at submission time.

**Submit all written material using a platform-neutral format such as PDF or Markdown** to ensure maximum compatibility. The various “office” suites rely on having the correct fonts installed and their documents may break if fonts are missing.

For milestones involving code, you are expected to meet professional industry standards for code formatting and style, indentation, naming conventions, and programming practices. For Java, refer to the following coding conventions:

<http://www.oracle.com/technetwork/java/javase/documentation/codeconvtoc-136057.html>

### 7.3 Final exam

There will be a three hour final exam that counts for **50%** of your final grade. Details will be provided later in the semester. All INFO 201 content is examinable unless otherwise stated.

### 7.4 Final grade and passing the paper

**TO PASS INFO 201 YOU MUST**  
achieve a total overall mark of at least 50%, AND  
score at least 40/100 in the final exam, AND  
participate in at least *seven* of labs 2 through 11 (terms).

Your final grade for INFO 201 will be calculated as follows:

Assessment	Weight	Learning outcome(s)
Project Milestone 1	10%	2, 3, 4
Project Milestone 2	20%	2, 3, 4
Project Milestone 3	20%	2, 3, 4
Final exam	50%	1, 2, 3, 4, 5
<b>TOTAL</b>	<b>100%</b>	

To pass INFO 201, you not only need to score at least 50% overall, but also **score at least 40/100 in the final exam.** If you do not meet this requirement you will fail the paper, *even if your total overall mark is over 50%.*

INFO 201 also has a terms requirement to **participate in at least seven of labs 2 through 11** (i.e., excluding the first week and the last two weeks). “Participate” means that you need to provide evidence of working on lab exercises in a timely manner. Push your work (a reasonable attempt is fine) for each lab exercise to GitBucket *no later* than the lab session in the following week. If

you do not meet this requirement you will not be permitted to sit the final exam and will fail the paper. You will be given fair warning before this happens (also see [Section 7.5](#) below).

You can check your internal assessment marks on [Blackboard](#). It is *essential* that you verify all your internal assessment marks and promptly notify the teaching staff of any errors or omissions.

## 7.5 Special consideration

### **If you feel unwell, please stay at home.**

Send us an email as soon as you can so that we can organise alternative arrangements for lab attendance and/or internal assessments.

If you have a disability, please let us know how we can help. We are happy to offer whatever assistance we can, but need to know in advance of any potential difficulties that might arise.

Sometimes events outside your control may cause you to miss a deadline or lab class. These may be known in advance (e.g., weddings, family reunions, jury duty, ...) or unexpected (e.g., illness, injury, family emergency, ...). If anything impacts your ability to submit **labs** (terms) or **project milestones**, please contact Dr. Stanger *as early as possible* so that alternative arrangements can be made. If you need to apply for special consideration for the **final exam**, contact AskOtago (see <https://www.otago.ac.nz/study/exams/otago062916.html> for details).

## 7.6 Use of large language models (e.g., ChatGPT)

You are probably aware of large language models (LLMs) such as ChatGPT. INFO 201 does not ban the use of LLMs, but **you must disclose any LLM use in submitted internal assessment work**, including full details of how and why you used them. Failure to do so may lead to academic misconduct proceedings. INFO 201 internal assessment is marked in person and you will be *required* to explain your work to the marker. Inability to do so will affect your mark.

You should be wary of LLMs in general, as they are purely statistical models with no actual “understanding” or “knowledge”. While their output sounds authoritative, it can often be misleading, incorrect, or even completely fake. This is particularly dangerous when you do not have sufficient understanding of a topic to spot the errors.

## 8 Further information

Refer to [Blackboard](#) >> INFO201 >> Information for additional general information that is not specific to INFO 201, such as student support services, academic integrity, and student feedback. All such material should also be considered part of this course outline.

## 9 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](#), and this document will be updated as required. The latest version can always be found on [Blackboard](#), so you should check [Blackboard](#) regularly for updates. It is your responsibility to be informed.

## INFO201 Schedule, First Semester 2023

as of 21st February

Week of	Lecture	Lecture Topic	Lecturer	Lab	Assessment
27 Feb	1	Introduction / Overview	NS	<ul style="list-style-type: none"> <li>• Lab Environment</li> <li>1 • NetBeans</li> <li>• PlantUML</li> </ul>	
	2	Version Control Systems	NS		
6 Mar	3	Software Development Methodologies	DA	2 • Git Crash Course	
	4	Requirements Engineering	DA		
13 Mar	5	Requirements Elicitation	DA	3 • Requirements Elicitation • Git Crash Course, cont.	
	6	Business Functions & Use Cases	DA		
20 Mar	7	Business Process Modelling	DA	4 • Business Rules • Use Case Diagrams	<b>Milestone 1 (24/3 @ 5pm)</b> • Requirements Elicitation
	8	Advanced Data Modelling 1: Patterns	DA		
27 Mar	9	Advanced Data Modelling 2: Normalisation	DA	5 • BPM • Database Design	(M1 Marking in Labs)
	10	Object-Oriented Concepts and UML Overview	NS		
3 Apr	11	Class Diagrams	NS	6 • Database Design, cont. • <b>Special arrangements for Good Friday labs</b>	
	12	Object Behaviour	NS		
10 Apr	<b>Mid-Semester Break</b>				
17 Apr	13	Sequence Diagrams	NS	7 • Class Diagrams • Sequence Diagrams	
	14	State & Activity Diagrams	NS		
24 Apr	<b>No Lecture: Anzac Day</b>			8 • UML Diagrams → Java	<b>Milestone 2 (28/4 @ 5pm)</b> • Business Rules • Function Catalogue • Implementation-Level ERD • Lo-Fi UI Mockups
	15	Round Trip and Reverse Engineering	NS		
1 May	16	Data Access	NS	9 • Domain Classes • Main Menu • Product Editor	(M2 Marking in Labs)
	17	Advanced Data Manipulation in SQL 1	NS		
8 May	18	Advanced Data Manipulation in SQL 2	NS	10 • DAO Programming • GUI List Components	
	19	Getting the Database to Do Stuff for Us	NS		
15 May	20	Software Architectures & System Templates	NS	11 • Lists, Sets, Maps • Search, Delete	
	21	Performance Issues	NS		
22 May	22	Intellectual Property and Software	NS	12 • Java → UML Diagrams • JDBC + SQL	<b>Milestone 3 (26/5 @ 5pm)</b> • Domain Classes • Product DAO • Add/View/Search/Delete • Sequence Diagrams
	23	Ethics & Professionalism	NS		
29 May	24	Cost-Benefit Analysis	NS	13 • M3 Marking	(M3 Marking in Labs)
	25	Review / Looking Forward to INFO 202	NS		

**Note: The contents of this schedule may be subject to change during the semester. The first week of semester is academic week 9.**

First semester exam period runs from Wednesday 7th June to Wednesday 21st June.