COMPSCI 101
SUMMER SCHOOL
2012

- Principles of Programming -

Lecture times and locations (rooms subject to change)

Monday: 10:00 am - 11:00 am ClockT029/105-029 (ClockTower building)
Tuesday: 10:00 am - 11:00 am ALR5/421W-301 (Architecture building)
Wednesday: 9:00 am - 11:00 am ClockT029/105-029 (ClockTower building)
Thursday: 10:00 am - 11:00 am ALR5/421W-301 (Architecture building)
Friday: 10:00 am - 11:00 am ClockT029/105-029 (ClockTower building)

Course description

We teach programming using the cross-platform, object-oriented programming language, Java. The main focus is on learning to understand the requirements of a programming task, and writing programs that are well structured, correct, easy to read, and to maintain. In order to do this, you will need to develop an understanding of how information can be represented in a program and how algorithms can be designed to manipulate this information. You will also learn how objects can be used to organise both the information and the algorithms that comprise our programs.

This course would suit students from a variety of disciplines wishing to have an understanding of computer programming as well as students wanting to continue on to further studies in Computer Science.

People

We have an excellent team of friendly and experienced staff to help guide you through the challenges involved in learning to program. The following people are involved with the course.

Adriana Ferraro (Course Coordinator)

- Email: adriana@cs.auckland.ac.nz
- Phone: 373-7599 ext 87113
- Room: 303S.592 (5th floor of the Computer Science Building)
- Office Hours: Open door policy – visit any time

Ann Cameron (Lab Supervisor)

- Email: ann@cs.auckland.ac.nz
- Phone: 373-7599 ext 84947
- Room: 303S.594 (5th floor of the Computer Science Building)
- Office Hours: Open door policy – visit any time

Alastair Abbot

- Email: aabb009@aucklanduni.ac.nz
- Phone: 373-7599 ext 87595
- Room: 303S-576 (5th floor of the Computer Science Building)
- Office Hours: Open door policy – visit any time

CompSci 101 SS C Lecture Schedule 4th January - 15th February, 2012 (THE SCHEDULE MAY CHANGE)

Day			Lecture	Lab	
Wednesday	4-Jan	**1**	Welcome, Introduction, Course requirements	Where is the lab?	
	4-Jan	**2**	Installing Java, Hello World, Java syntax		
Thursday	5-Jan	**3**	Displaying output, Primitive types	L1: Introduction, email, forums, running a simple java program	
Friday	6-Jan	**4**	Variables, Expressions, Casting		
			Saturday/Sunday		
Monday	9-Jan	**5**	Input,static methods, Math class, int, double	L2: Input, output, Math methods	
Tuesday	10-Jan	**6**	String processing, String instance methods, Dot Notation		
Wednesday	11-Jan	**7**	Writing methods, parameters, return type, void		
	11-Jan	**8**	Scope of local variables, parameters		
Thursday	12-Jan	**9**	Constants, boolean variables, tracing code	L3: String methods, writing methods	
Friday	13-Jan	**10**	boolean expressions, if statements		
			Saturday/Sunday		
Monday	16-Jan	**11**	if-else statements, if-else-if statements, nested if statements	L4: if..else, while loops	
Tuesday	17-Jan	**12**	Loop statements		
Wednesday	18-Jan	**13**	Arrays of primitives		
	18-Jan	**14**	Classes and objects, instance variables, instance methods		
Thursday	19-Jan	**15**	public and private, accessor methods	L5: for loops, arrays of primitives	
Friday	20-Jan	**16**	More on classes		**A1: I/O, methods (4 marks) 4pm**
			Saturday/Sunday		

Monday	23-Jan	**17**	Tutorial - classes	L6: classes	
Tuesday	24-Jan	**18**	Test Revision		**A2: CodeWrite activity (1 mark) 4pm**
Wednesday	25-Jan	**19**	Arrays of object types		
	25-Jan	**20**	Tutorial - arrays of objects		**TEST**
Thursday	26-Jan	**21**	Creating a window, drawing in the window	L7: arrays of objects	
Friday	27-Jan	**22**	Adding components to a window, JButtons, JTextFields		
			Saturday/Sunday		
Monday	30-Jan		Holiday - Auckland Anniversary Day		
Tuesday	31-Jan	**23**	Handling ActionEvents	L8: paintComponent(), ActionEvents	
Wednesday	1-Feb	**24**	Tutorial - ActionEvents	Monday labs do Lab 8 on Wednesday	
	1-Feb	**25**	Mouse events, Key events		
Thursday	2-Feb	**26**	Animation using the Timer class	L9: KeyListener, Animation	**A3: Classes, arrays (5 marks) 4pm**
Friday	3-Feb	**27**	Points and Rectangles		
			Saturday/Sunday		
Monday	6-Feb		Holiday - Waitangi Day		
Tuesday	7-Feb	**28**	Tutorial - KeyEvents, Animation	L10: MouseEvents, Point, Rectangle,	
Wednesday	8-Feb	**29**	Assignment 3 discussion	Monday labs do Lab 10 on Wednesday	
	8-Feb	**30**	Tutorial - Points and Rectangles		
Thursday	9-Feb	**31**	Revision, parameter passing		
Friday	10-Feb	**32**	Questions, Assignment 3 competition		
			Saturday/Sunday		**A4: GUI (5 marks) 4pm**
Monday	13-Feb		Study break and Exams		
Wednesday	15-Feb		End of Summer School		

Labs

The labs are designed to give you practical experience with the basic concepts which you have learnt in lectures. They are primarily a learning aid, and you can ask for help if you get stuck.

It is important that you prepare for each lab session before you attend. You should read through the relevant topics in your lecture notes and coursebook before the lab session begins. Also, please bring your course book to each lab session.

Attendance at the labs is compulsory. Every laboratory session contributes towards your final grade. Please keep your signed lab preparation sheet as proof of lab attendance.

	Held	**Worth**
Lab One	**5th/6th January**	**1%**
Lab Two	**9th/10th January**	**1%**
Lab Three	**12th/13th January**	**1%**
Lab Four	**16th/17th January**	**1%**
Lab Five	**19th/20th January**	**1%**
Lab Six	**23rd/24th January**	**1%**
Lab Seven	**26th/27th January**	**1%**
Lab Eight	**31st January/1st February**	**1%**
Lab Nine	**2nd/3rd February**	**1%**
Lab Ten	**7th/8th February**	**1%**

Which labs should I attend?

The table below lists every lab session held each week. When you enrolled using Student Servies Online, you selected one "Lab" session, and one "Tut" session. Although these have different names, they both correspond to compulsory "lab sessions".

You must attend:

- the "Lab" session you have booked on either Monday or Tuesday (i.e. one of Groups 1 – 4)

AND

- the "Tut" session you have booked on either Thursday or Friday (i.e. one of Groups A – D)

Lab Schedule

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
11am-1pm	**Group 1**	**Group 3**		**Group A**	**Group C**
1pm-3pm	**Group 2**	**Group 4**		**Group B**	**Group D**

All of the lab sessions for CompSci 101 are held in the Ground Floor Tutorial Lab (GTL). This is Room G75 on the ground floor of the Computer Science extension of the Maths & Physics Building (Building 303S).

When do the lab sessions start?

The first assessed lab is held on Thursday 5rd and Friday 6th January – you must attend the session that you have booked.

How do I prepare for my lab?

At the end of each lab you will be given a laboratory worksheet. This sheet will contain exercises and recommended reading which you are required to complete **before** the start of your next lab. When you arrive at the next laboratory session, you are expected to hand in the completed worksheet to the worksheet hand-in box.

You are expected to arrive at the laboratory session on time. There will be a penalty applied to students who arrive late to their laboratory, or arrive unprepared (i.e. without the completed preparation sheet). At the start of each laboratory, the tutor will explain the topics which will be covered during that session. For some labs, students will work in pairs to complete the laboratory tasks.

If you have a genuine reason for being unable to attend your lab session, you should contact Ann Cameron (ann@cs.auckland.ac.nz) as soon as possible.

Pair Programming

Pair programming is a technique where two programmers work together on the same computer. It is sometimes known as "ego-less" programming because two people cooperate to produce a solution which is jointly owned. The responsibility for the program is shared between both partners and both people are expected to contribute to the final product.

In pair programming, one person is designated to be the "driver" and the other is the "navigator". The driver sits directly in front of the keyboard and mouse, and is the person who actually types the program and uses the mouse. The primary role of the driver is to take control and continually make progress by writing code.

The navigator sits adjacent to the driver in a position where the computer screen can easily be seen. The role of the navigator is to check the code for errors and style problems. They should be thinking strategically and offering suggestions about what needs to be done next. The navigator acts as a critic and reviewer for the code which is written. The navigator can also look up information in reference books and find out more information about any error or problem which may occur.

It is important that both partners get equal time in both roles. Remember that the programs are being produced cooperatively, so if the roles are switched at any time the new driver can continue the development of the same code. Every 15 minutes the roles should be switched. This should be done on the quarter hours (e.g. 1:00, 1:15, 1:30, 1:45 and so on).

Assignments

There are four assignments three of which must submitted electronically using the web drop box:

https://adb.ec.auckland.ac.nz/adb

		Due		Time	Worth
Assignment One	**Friday**	**20th**	**January**	**4.00pm**	**4%**
Assignment Two	**Tuesday**	**24th**	**January**	**4.00pm**	**1%**
Assignment Three	**Thursday**	**2nd**	**February**	**4.00pm**	**5%**
Assignment Four	**Saturday**	**11th**	**February**	**4.00pm**	**5%**

The assignments are substantially more challenging than the laboratory work. They are designed to challenge and extend students, providing an opportunity for students to show how much they have learnt through the lectures and labs.

Students are expected to complete each assignment by themselves. It is acceptable to discuss the assignments with other students, but it is never acceptable to work together on the actual code, nor is it acceptable to share solutions to assignments. There are severe penalties for students who cheat in this course (see the section on "Cheating and Plagiarism" below for more details).

Policy on Cheating and Plagiarism

The Computer Science Department uses many ways to check that the work students submit for marking is their own and was not produced by, or copied from, someone else. In particular, for programming assignments, the department uses a comparison program to automatically compare all submissions from students.

- Offenders may be referred to the University Disciplinary Committee
- Note: It is important that you do not give your assignment code to others. It is the responsibility of each student to ensure that others do not copy their work.

If you want to query an assignment mark

If you believe there is an error in the marking of an assignment and you wish to query it, you must do so within one week of the date when the results of the assignment were sent to you. After this time, no changes can be made to an assignment mark. All queries should be emailed to the course supervisor (adriana@cs.auckland.ac.nz).

You should attach a copy of the marking sheet you were sent, along with an explanation of exactly what aspects of the marking you disagree with. The supervisor of the course will review the marking of the assignment and send you a response via email. Note that when the marking is reviewed it is possible that the results may increase or decrease if mistakes in the marking are discovered during the review process.

Test

The test is worth 15% of your final mark. Provisionally the date for the test is Wednesday 25th January, 5:40pm – 7:00pm. Confirmation and location will be announced during lectures closer to the time. If you are enrolled in another course that has a test scheduled for the same time (or if you are unable to attend this test time for another reason), then please contact the course coordinator, Adriana Ferraro (adriana@cs.auckland.ac.nz) as soon as possible.

Exam

The exam is worth 60% of your final mark. Please check *Student Services Online* for the exam time and date. The locations of your exams will be posted on noticeboards around the University grounds and also online from the examinations website:

http://www.auckland.ac.nz/uoa/cs-examination-information

after 5:30pm the day before each exam.

Passing the course

Your final grade for COMPSCI 101 will consist of 25% practical and 75% theory. COMPSCI 101 is a practical course, which means you must pass the practical (labs and assignments) and the theory (test and exam) sections separately. In other words, your total practical mark must be at least 12.5/25 and your total theory mark must be at least 37.5/75.

For example,
If your labs total is 10/10, then you would only need at least 2.5/15 for the assignments in order to pass the practical requirement (12.5/25).
If your test mark is 0/15, then you would need to get 37.5/60 for the exam (around 63%) in order to pass the theory requirement.

Missed work

If you miss a lecture, you should catch up as soon as possible by reading the corresponding lecture notes and by watching the corresponding lecture recording. If you miss your scheduled lab session for a valid reason, you should contact the lab supervisor (Ann Cameron) as soon as possible.

If you miss the deadline for an assignment and have a valid reason, you should see the course coordinator (Adriana Ferraro).

If you miss the test/exam for any valid reason, or you sit the test/exam but believe that your performance was impaired for some reason, then you may be able to apply for an aegrotat, compassionate or special pass consideration. For more detailed information, refer to the University of Auckland's 2012 Calendar, pages 44 - 45 or refer to the online information on Missed Exams, Aegrotats and Compassionate Consideration:

http://calendar.auckland.ac.nz/regulations/academic/examination.html

Course Book and Code Examples Booklet

There is a compulsory COMPSCI 101 course book which can be purchased from the university bookshop (UBS Bookshop in the Kate Edger Information Commons). This course book contains all the material required for COMPSCI 101. As well, there is a compulsory booklet of code examples which can be purchased from UBS.

Optional Reference Book

The following text, which is available from the book shop, general library and short loan collection has been used previously and is suitable for students who seek further information:

- "Java 2: The Complete Reference", Herbert Schildt, McGraw-Hill/Osbourne (any edition is fine)

Internet resources

The class website is an extremely useful resource with lecture notes, lab and assignment resources, and other useful links (such as to the class forum). The address is listed below.

- http://www.cs.auckland.ac.nz/compsci101ssc/

Forum

An electronic forum is available for use by COMPSCI 101 students. The forum is also used by staff to post announcements and to provide information to students. Many topics related to the course are discussed and clarified on the forum. Please check the forum regularly.

- http://forums.cs.auckland.ac.nz/

The forum is an extremely valuable resource for students if used correctly. The forum generates an enormous amount of information (there are normally around 6000 messages posted by students each semester). It is impractical for most students to read every message, and so you are advised to follow the simple guidelines below:

- Never post solutions (in part or in total) to labs or assignments, even after they are due (some students may have extensions). You may be banned from the forum if you break this rule.
- Never post abusive messages. This includes swearing, personal attacks, name calling, racism and other forms of socially unacceptable behaviour. You may be banned from the forum if you engage in this behaviour.
- Always use a useful subject name for your message. “Need help” is not useful since it does not tell others what you need help with. “Question

about the scope of variables" is a far more useful subject for your message since it tells the readers exactly what topic your message is about.

- Use the search facility. It is possible that someone has asked the same question before, so always spend 5 minutes checking to make sure that you are not repeating the questions or comments which have been discussed previously.
- Ensure that your messages are of a high standard. If your messages contain grammatical or spelling mistakes (or in some cases are simply unintelligible), then you may look foolish and unprofessional.
- Computers are not cellphones, so please do not use "TXT language".
- Use the preview option and read your message before you post to make sure you have not made a simple mistake. There is no way to edit your post once it is sent, so be careful to say what you mean.

CECIL

The Computer Science Department has a web site for each course. We do not use CECIL for the distribution of standard teaching resources. The CECIL system is only used to record the marks obtained by students in the course, to hold the lecture recordings and for class announcements. Please check your marks on CECIL regularly. The address of the CECIL system is:

- http://cecil.auckland.ac.nz

If there are any problems with your marks recorded on Cecil, please contact Ann Cameron.

All other resources (e.g. lecture notes, assignments, laboratories, past years tests and exams) are stored on the COMPSCI 101 web site maintained by the Computer Science Department:

- http://www.cs.auckland.ac.nz/compsci101ssc

Webmail

All students have a university email account. Your university email address is NetID@aucklanduni.ac.nz, e.g. `abcd001@aucklanduni.ac.nz`.

You can access your email from anywhere you have Internet access, by logging into:

- http://webmail.ec.auckland.ac.nz

You must read email sent to your university email address regularly, as staff members often send important messages to students via their university email address. When you are contacting staff members in the Computer Science Department, please use your university email address. Many staff members have automatic filters set up to delete spam coming from unknown addresses and email from systems such as Hotmail may get deleted.

Print Quota / Internet Quota

You can add credit to your print quota at the IC Helpdesk on Level 2 of the Kate Edger Information Commons, 11 Symonds St.

How to Seek Assistance

In the labs, there are always tutors and demonstrators available to help you. If you have an administrative problem (e.g. you have been ill, you have a timetable clash with your test, etc.), or any other sort of problem with which you need, please see the course coordinator (Adriana Ferraro). If you need extra help with understanding the course material, or preparing for the test or exam, you are very welcome to visit any of the teaching staff (Adriana, Alastair and Ann).

Undergraduate Laboratory

If you wish to use a computer outside of your lab session, you may use a computer in the First Floor Computer Laboratory (FCL), located on the first floor of Building 303. The opening hours are 11am – 6.45pm during weekdays and 1pm – 4:45pm on Sundays. You may use the computers in this laboratory any time during these hours. Please note that the FCL is a "quiet labs" so loud talking is not permitted.

Final Learning Outcomes

A student who successfully completes this course will be:

- able to design solutions to simple problems
- able to implement the designs by writing well-structured programs which follow the language conventions
- able to test programs
- able to debug programs