Computer Science 1016S-2009 Notes to Students

Course Description

Computer Science 1015/8F and 1016S (or 1010H and 1011H) together constitute a complete Computer Science curriculum for first year students, offering an introduction to the development of algorithms and writing of computer programs, along with other selected topics in Computer Science.

Prerequisites

CSC1015F (or supp for CSC1015F), or CSC1010H or registration for CSC1018F.

MAM1000W (or its equivalent) is a co-requisite.

Staff

Course Convenor:	Dr Hussein Suleman *hussein@cs.uct.ac.za*
Lecturers:	Prof. Edwin Blake *edwin@cs.uct.ac.za*
	Dr Hanh Le *hanh@cs.uct.ac.za*
	Dr Mike Linck *pam.linck@ebucksmail.com*
	Dr Audrey Mbogho *ambogho@cs.uct.ac.za*
Teaching Assistant (TA) and Tutors:	(will be announced on Vula)

Textbook and Notes

The prescribed textbook is as follows:

Absolute Java, (International/Third edition) *by Walter Savitch,* Pearson / Addison-Wesley, ISBN: 9780321505040

Class notes (copies of slides) may be available for selected sections and announced by the relevant lecturer(s). Electronic copies of lecture slides will be made available on Vula.

Vula

Vula (http://vula.uct.ac.za) is the university-wide online learning management system that gives you access to resources to assist in the learning process. The class website for all courses will be located on the Vula system.

Lecturers, TAs and tutors may be consulted through Vula – this is preferable since any questions that are answered may benefit other students as well.

Vula is used for the submission of ALL practical assignments and practical tests and for providing students with marks for assignments and tests, and feedback where appropriate.

All students will be expected to consult the website on a daily (Monday-Friday) basis for updates on assignments, marks, hints, deadlines, etc.

Lectures

Lectures are held in Computer Science 2A in 4th period (11h00-11h45) and Computer Science 302 in 5th period (12h00-12h45), in the Computer Science Building, from Monday-Friday every week. You may attend either lecture.

Pre-practical sessions are held on Fridays when a Practical Test is not scheduled, in the lecture venue. During these sessions, the TAs and/or lecturers will review essential work for upcoming practical assignments and tests.

Tests

There will be 3 closed-book 40 minute theory tests, in Jameson Hall, in the lecture periods.

There will be 2 open-book 40 minute practical tests in Scilab A/B on selected Fridays. Each practical test will be offered thrice – you may write one or all of them and the maximum mark obtained will be used.

(see the schedule for dates)

Tutorials / Practical Assignments

Tutorials are held in Scilab A on Monday, Tuesday and Wednesday afternoons every week. You will be allocated to one 2-hour session each week, where you may work on the current practical assignment and discuss any general issues related to practical work with the tutors who are available. Attendance at these sessions is not compulsory, but strongly encouraged.

It is your responsibility to sign up for a tutorial that fits in with your timetable. If you do not sign up for a session as soon as possible and find that all slots are filled, it is your responsibility to find a student with whom you can arrange a swap as soon as possible.

Questions and Submission

All questions for assignments, along with all related files, will be available on the class website on Vula. Practical assignments must be submitted electronically via Vula ONLY. The online submission system used to receive your assignments will provide the official timestamp used to determine whether a program is on time. Marks will be deducted automatically for automatically-marked assignments that are submitted late.

Marking

Most assignments will be marked automatically based on test cases and the marks will be uploaded to Vula. Tutors will mark randomly-chosen practical assignments during the semester.

Equipment and Programming Language

All programming will be done in Java (JDK v1.6.0) unless otherwise stated. The tutors will compile and test programs on JGrasp v1.8.5 running on Windows XP.

It is the responsibility of the student to submit a program that will successfully compile and execute on the specified platform. Any student who works on their own equipment must ensure that all assignments will compile and execute on the university equipment before submission – no discussion will be entered into after submission.

Computing facilities are available for use in the Scilabs that are located in the Computer Science building (Scilab A and B), RW James (Scilab C) and P D Hahn (Scilab D). Students also may use The Shuttleworth Lab, which is located in the Computer Science building and is open 24/7 (with student-card access).

It is ALWAYS the student's responsibility to ensure that adequate backup copies are made of all work in progress and all work already completed. Loss of data or programs is not an acceptable excuse for non-submission or late submission of assignments.

Plagiarism

Refer to attached document for the departmental plagiarism policy. This policy will be strictly enforced.

All assignments, tests and examinations are done individually – there is NO group work allowed in these courses. It is acceptable to discuss the questions for assignments with peers but not the specific details of the solutions. When in doubt, speak to a tutor or TA.

Students are required to sign and submit a form (on the last page) verifying that they have read and understood the contents of this policy before commencing any form of assessed work.

DP Requirement

A student is granted DP status (and may write the exam) in CSC1016S if the following condition is met:

- (4/5 * Practical average + 1/5 * Practical test average) >= 45%

Final Examination

The examination timetable will be published sufficiently in advance of the final examination on university notice boards. It is the student's responsibility to take note of the correct time and place for the examinations.

The examination will be cumulative, closed-book and closed-notes (i.e., you may not bring your notes or textbooks into the examination room), and 3 hours in duration.

A final mark in CSC1016S will be calculated as follows:

Final = 0.20 * Practical average + 0.15 * Test average+ 0.05 * Prac test average + 0.60 * Exam

In order to pass, ALL of the following requirements MUST be met:

- Final >= 50%
- (4/5 * Practical average + 1/5 * Prac test average) >= 45%
- (1/5 * Test average + 4/5 * Exam) >= 45%

Refer to the CSC1011H notes to students for the CSC1011H final mark calculation.

Grade Allocation

1 = 75-100; 2+ = 70-74; 2- = 60-69; 3 = 50-59; F = 0-49

Information Dissemination and Communication

Attendance and Absence

This is a lecture course. While attendance at lectures is not mandatory after the first day, all marked work (assignments, tests and exams) will be based on the lectures. Obviously, non-attendance at tests and exams will result in a mark of 0 (zero).

ALL students will be expected to complete ALL assigned work. If you miss ANY assigned work with a legitimate reason, send an email to the course convenor within a week or as soon as possible thereafter. Note that there are few legitimate reasons that will be accepted – these include hospitalization or illness – and a medical certificate from a qualified medical practitioner is typically required. Such medical certificates must be delivered to the departmental secretary.

Queries

Any queries about the content of the lectures MUST be directed to the lecturer teaching that section.

Any queries about marks or marking of practical assignments must be directed to your tutor or TA.

All marked work (whether in paper or electronic format) must be kept until the end of the semester. In general, queries about marks MUST be made within a week of marked work being returned. No queries about any marks will be entertained after the final examination.

Any queries about the administration of the course must be directed to the TA.

The course convenor must ONLY be contacted as a last resort unless otherwise indicated.

Disability

If any student needs special accommodation because of a disability, please contact the course convenor during the first week of classes.

Syllabus

Corresponding chapter numbers in the prescribed textbook are indicated in parentheses.

- Recursion (Chapter 11)
- Exceptions (Chapter 9)
  - Using exceptions; Types of exceptions; Defining exceptions
- File I/O (Chapter 10)
  - Text files; Binary files
- Polymorphism (Chapter 8)
  - Using polymorphism; Abstract classes
- UML and Patterns (Chapter 12)
  - Understanding UML; Introduction to Patterns
- Interfaces (Chapter 13)
  - Creating interfaces; Using interfaces

- Sorting and Searching (in multiple chapters)
  - Selection Sort; Merge Sort; Quick Sort; Analysis of sorting algorithms; The Bisection algorithm
- Linked Data Structures (Chapter 15)
  - Singly-linked lists; Doubly-linked lists; Stacks; Queues; Binary Trees
- GUIs and Graphics (Chapter 17, 18)
  - Java Graphics primitives; Swing
- Ethics in Computing and ICT for Development
  - Ethics; Professional Practice; Legalities of Software Systems; Open Source Software Development; ICT for Development

Tentative Schedule of Lectures and Practical Work

The numbers indicate the corresponding chapter of the prescribed textbook.

	M	T	W	H	F	Lec	Practical	Due Date
27 Jul	11	11	11	11	Orient	mhl		
3 Aug	9	9	9	9	PP		1 - Review	6 Aug
10 Aug	Holiday	10	10	10	PTest1		2 - Recursion	13 Aug
17 Aug	10	8	Test1	8	PTest1	hl	3 - Exceptions	20 Aug
24 Aug	8	8	12	12	PTest1		4 - File IO	27 Aug
31 Aug	13	SS	SS	SS	PP		5 - Polymorph	3 Sep
7 Sep	Holiday							
14 Sep	SS	15	15	15	PP	am	6 – Sorting	17 Sep
21 Sep	15	15	Test2	Holiday	PTest2		7 - LL	25 Sep
28 Sep	17	17	17	18	PTest2		8 - Stax/Que	1 Oct
5 Oct	18	18	Eth	Eth	PTest2	eb	9 - GUI	8 Oct
12 Oct	Eth	Eth	Test3	Eth	PP		10 - Ethics	15 Oct
19 Oct	Eth	Eth	Eth	Eth	PP			
26 Oct	Eth	Eth	Study					
2 Nov	Exams			Study				
9 Nov	Exams			Study				
16 Nov	Exams		Holiday					

Computer Science 1016S

2009

Plagiarism Policy Acceptance

I, _____, Student number: _____, hereby acknowledge that I have read and understood the plagiarism policy of the Department of Computer Science. I will adhere to this policy and the general policies of the university referred to therein.

Signature: _____

Date: _____