

# Computer Science 1015F ~ 2010 ~ Notes to Students

## Course Description

Computer Science 1015/8F and 1016S 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.

CSC1015F and CSC1018F are offered in the first semester – CSC1015F is for students who are new to programming or who are not adept at Java while CSC1018F is for students who have already mastered the Java programming language and wish to study an alternative language. A student may only register for and get credit for one of these 2 courses.

CSC1016S is offered in the second semester for all 1<sup>st</sup> year Computer Science students.

## Prerequisites

CSC1015F: At least a level 5 NSC or D at the Senior Certificate Higher Grade. No prior knowledge of computer programming is necessary for CSC1015F!

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

## Staff

<b>Course Convenor:</b>	A/Prof. Hussein Suleman	hussein@cs.uct.ac.za
<b>Lecturers:</b>	A/Prof. Hussein Suleman Dr Mike Linck	hussein@cs.uct.ac.za Mike.Linck@eject.co.za
<b>Teaching Assistants (TAs):</b>	Kyle Williams Xoluqobo Mkhwanazi	kwilliams@cs.uct.ac.za mkhol007@cs.uct.ac.za
<b>Tutors:</b>	(will be announced on Vula)	

## Textbook and Notes

The prescribed textbook is as follows:

Absolute Java, (International/Fourth edition) by *Walter Savitch*, Pearson / Addison-Wesley, ISBN: 9780131365896

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 4<sup>th</sup> period (11h00-11h45) and 5<sup>th</sup> period (12h00-12h45), in the Computer Science Building, from Monday-Thursday every week and on some Fridays. You may attend either lecture.

## Hotseat

The Computer Science HotSeat is run by senior tutors who can assist you to understand difficult concepts or work through problems you have encountered during lectures, assignments or tests. The HotSeat tutor is available in Room 306, CS Building. A schedule of available times will be posted once finalised.

## Tests

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

There will be 3 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 test 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 v1.8.6 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 tests and examinations are done individually – there is NO group work allowed in tests and examinations.

For assignments, students experiencing difficulty are encouraged to work in groups of up to 3, but write the final solutions individually. In such cases, all members of the group must be clearly listed in the submission.

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

Before a student may write any final examination, Duly Performed status must be obtained. This is an indicator that a student has performed the required work during the semester. A DP list is published prior to the examination and no student will be assessed in the final examination if DP status is not granted - not obtaining DP status is thus equivalent to failing a course.

A student is granted DP status in CSC1015F if the following condition is met:

- $(3/5 * \text{Practicals average} + 2/5 * \text{Practical test average}) \geq 45\%$

## 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.

All examinations will be closed-book and closed-notes (i.e., you may not bring your notes or textbooks into the examination room). There will be one cumulative 3-hour final examination.

A final mark in CSC1015F will be calculated as follows:

$$\text{Final} = 0.15 * \text{Practical average} + 0.15 * \text{Test average} + 0.10 * \text{Practical test average} + 0.60 * \text{Exam}$$

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

- Final  $\geq 50\%$
- $(3/5 * \text{Practical average} + 2/5 * \text{Practical test average}) \geq 45\%$
- $(1/5 * \text{Test average} + 4/5 * \text{Exam}) \geq 45\%$

## Supplementary Examinations

Students who do not pass but obtain a mark of 45-49 may be awarded a supplementary examination. These are determined by the faculty in November and are written in January.

## 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.

- Introduction to Computer Science
  - What is Computer Science, Applications of Computing, History of Computing, Computer Hardware (Machine Architecture, Networking), Computer Software (System Software, Applications), Algorithms and Programming Languages
- Introduction to Java (Chapter 1)
  - The Java programming environment, Hello World
- Data Types (Chapter 1)
  - Numerical Data types, Strings, Expressions, Variables and Assignment, Testing, Tracing and Debugging, Comments
- Console I/O (Chapter 2)
  - Screen output, Console input
- Control Structures (Chapter 3)
  - Boolean expressions and logical conditions, If statements, nested ifs, if-else, if ladders, Loops: for, while, do-while
- Classes (Chapter 4, 5)
  - Object-oriented design, Defining classes, Using classes, Information hiding and encapsulation, Overloading, Constructors, Static methods and variables, References, Packages and Javadoc
- Arrays (Chapter 6)
  - Defining and using 1-dimensional arrays, Arrays and References, Multidimensional arrays
- Number Systems
  - Machine representations of data, Binary operations, Boolean algebra

### **Computer Science Development Program**

The Computer Science Department runs academic development courses – CSC1010H and CSC1011H – that are part of the General Entry Program in Science (GEPS). CSC1010H runs over an entire year and covers the syllabus of CSC1015F at a somewhat slower pace and in greater depth. In the first semester of the following year of study, CSC1011H covers additional material to assist students in their transition to CSC1016S, which forms the second semester module of CSC1011H. Note that each of these GEPS courses counts only as a half credit.

Students who do not perform adequately in CSC1015F may be permitted to join CSC1010H at the beginning of the second quarter, on condition that the student has a good record of submitting practical assignments and there is sufficient space in the CSC1010H course. Any student who feels that they may benefit by joining CSC1010H should consult Hussein Suleman or James Gain (GEPS Coordinator) before the end of the first quarter.

## 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
08 Feb	Intro	Intro	Intro	Intro	Orient	hs		
15 Feb	Intro	Intro	1	1	Orient		0 - Intro	19 Feb
22 Feb	1	2	2	2	PTest1		1 - Intro	26 Feb
01 Mar	3	3	Test1	3	PTest1		2 - Console IO	05 Mar
08 Mar	3	3	3	3	PTest1		3 - Control (if)	12 Mar
15 Mar	4	4	4	4	PTest2		4 - Control (for)	19 Mar
22 Mar	Vacation							
29 Mar	4	4	4	4	Holiday	mhl	5 - Classes	01 Apr
05 Apr	Holiday	5	Test2	5	PTest2			
12 Apr	5	5	5	5	PTest2		6 - Classes	16 Apr
19 Apr	6	6	6	6	PTest3		7 - Classes	23 Apr
26 Apr	6	Holiday	Test3	6	PTest3		8 - Arrays	30 Apr
03 May	NS	NS	NS	NS	PTest3	hs	9 - Arrays	07 May
10 May	NS	NS	NS	Study				
17 May	Study	Exams			Study			
24 May	Exams				Study			
31 May	Exams				Holiday			
07 Jun	Vacation							

# Computer Science 1015F

2010

## 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: \_\_\_\_\_