M A S S E Y U N I V E R S I T Y
COLLEGE OF SCIENCES
Important Information about 159201 - Summer 2014

Paper Number and Title: 159201 Algorithms and Data Structures
Credit value: 15
Campus: Albany **Semester:** 1403 **Mode:** Internal
Calendar Prescription:
Structured types. Array, list, tree and graph algorithms. Hash tables. Dynamic data structures. Abstract data types.
Pre-requisites: 159.101 and 159.102
Restrictions: 159.211, 159271
E-Learning Category: N/A

Lecturer:
Dr Andre Barczak, Office IIMS 2.06 email:A.L.Barczak@massey.ac.nz Phone: 43131

Learning Outcomes:
On successful completion a student should be able to:

1. Represent lists, stacks, queues and other data structures in an appropriate way for the target programming language
2. Explain the advantages and disadvantages of particular representations of these structures in particular circumstances.
3. Design and implement computer programs that make use of these structures.
4. Discuss the concepts of Abstract Data Types, including encapsulation and data hiding.

Alignment of Assessment to Learning outcomes

Assessment Description	Learning Outcomes Assessed					Contribution to Paper Mark
		1	2	3	4	
Assignments	✔		✔	✔	✔	20.00%
Mid-semester Test	✔	✔	✔	✔	✔	20.00%
Final Examination	✔	✔	✔	✔	✔	60.00%

Assessments and Deadlines

Assessment	**Due Date / Deadline**	**Late Penalty**	**Paper completion requirement**	**percentage**
Assignment 1	28/Nov	-10% per day	n/a	2
Assignment 2	5/Dec	-10% per day	n/a	3
Assignment 3	12/Dec	-10% per day	n/a	3
Assignment 4	9/Jan	-10% per day	n/a	3
Assignment 5	16/Jan	-10% per day	n/a	3
Assignment 6	23/Jan	-10% per day	n/a	3
Assignment 7	30/Jan	-10% per day	n/a	3
Mid-semester Test	**11/December**		**compulsory**	**20**
Final Exam	**(exam timetable)**		**compulsory**	**60**

Additional Requirements for Paper Completion
Achieve an aggregated value of at least 50% for all the three assessment components.

Student Time Budget:
A 15 credit paper equates to 12.5 hours per week.

Timetable: **https://www.massey.ac.nz/massey/learning/timetables/**

Calendar for Summer papers:

Lectures: 17 November 2014 - 2 February 2015
break: 12 December 2014 - 4 January 2015
Test day: 11th December 2014 (mandatory)
Exam day: (to be confirmed) 13 February 2015 (Friday, morning)

Lectures for 159201: start on the **17th of November Monday** for 4 weeks until the **11th of December Thursday**. Lectures resume on the **5th of January/2015 Monday** for another 4 weeks, with an additional tutorial until the **2nd of February Monday.** The lecturer is available (office hours) on the week 15-19 of December.

Recommended Reading:
Any book about data structures and algorithms in C and/or C++, e.g.:
Data Structures and Algorithms in C++ by Adam Drozdek, Thompson (any edition). e.g. ISBN 0-534-49182-0

Conditions for Aegrotat Pass and Impaired Performance:
If you are prevented by illness, injury or serious crisis from attending an examination (or completing an element of assessment by the due date), or if you consider that your performance has been seriously impaired by such circumstances, you may apply for aegrotat or impaired performance consideration. You must apply on the form available from the Examinations Office, the Student Health Service or the Student Counselling Service.

(a) To qualify for an aegrotat pass on the final examination, you must have **attempted at least 40%** of the total formal assessment and your performance must be well above the minimum pass standard, so that the examiners can be confident that you would have passed the paper if you had completed the final examination. You may also apply for aegrotat consideration for other compulsory assessment elements (such as Semester Tests) that occur at a fixed time and place if you are prevented by illness, injury or a serious crisis from attending.

Plagiarism:
Massey University, College of Sciences, has taken a firm stance on plagiarism and any form of cheating. Plagiarism is the copying or paraphrasing of another person's work, whether published or unpublished, without clearly acknowledging it. It includes copying the work of other students. Plagiarism will be penalized; it is likely to lead to loss of marks for that item of assessment and may lead to an automatic failing grade for the paper and/or exclusion from reenrollment at the University.

Grievance Procedures:

A student who claims that he/she has sustained academic disadvantage as a result of the actions of a University staff member should use the University Grievance Procedures. Students, whenever practicable, should in the first instance approach the University staff member concerned. If the grievance is unresolved with the staff member concerned, the student should then contact the College of Sciences office on his/her campus for further information on the procedures, or read the procedures in the University Calendar.

Deadlines and Penalties:
Assignments can be handed up to 10 days late, but they may lose 10% of the marks per late day.

Appendix A
Lecture Outline and Teaching Planned Schedule (may be subject to changes):

Week 1:	Data structures, linked-lists, Stacks
Week 2:	Queues, Lists
Week 3:	Lists, General trees
Week 4:	Binary trees; **TEST**
Week 5:	Binary search trees, other trees
Week 6:	Sets and Bags
Week 7:	Graphs, Sorting
Week 8:	Sorting, Hashing, introduction to Complexity.

Paper Coordinator:
Andre Luis Chautard Barczak Date: Nov/2014