# Course Review

## Things to Note …

- Pre-exam consultation: Fri 3 Nov, 2-4pm in room 401K, K17
- MyExperience survey ends 2 Nov

## In This Lecture …

- Course Review, Exam Preview

## Coming Up …

- Exams, Holidays …

# Course Review (cont)

## Goal:

For you to become competent Computer Scientists, in being able to:

- choose/develop effective data structures
- choose/develop algorithms on these data structures
- analyse performance characteristics of algorithms (time/space complexity)
- package a set of data structures+algorithms as an abstract data type
- represent data structures and implement algorithms in C

# Assessment Summary

```
assn1 = mark for assignment 1    (out of 10)
assn2 = mark for assignment 2    (out of 15)
mid   = mark for mid-term exam   (out of 25)
final = mark for final exam      (out of 50)

if (mid+final >= 35)
   total = assn1 + assn2 + mid + final
else
   total = (mid+final) / 0.75;
```

To pass the course, you must achieve:

- at least 35/75 for **`mid+final`**
- at least 50/100 for **`total`**

# Assessment Summary (cont)

Check your results

```
prompt$ 9024 classrun -sturec

ClassKey: 17s2COMP9024
...
assn1: 8/10
mid: 17/25
examTotal: 17/75
```

# Final Exam

Goal: to check whether you are competent Computer Scientist

Requires you to demonstrate:

- understanding of fundamental data structures and algorithms
- ability to analyse time complexity of algorithms
- ability to develop algorithms from specifications

Lectures, problem sets and assignments have built you up to this point.

# Final Exam (cont)

2-hour exam on **Thursday 9th November**

9am-11am, reading time from 8:50, be there at 8:45

- 10 multiple-choice questions, 4 open questions
- Covers all of the contents of this course
- Each multiple choice question is worth 2 marks (10 × 2 = 20)
  Marks for the open questions are not all of equal value (8+6+8+8 = 30)
- Answer multiple-choice questions directly in the exam paper
- Write your answers for the open questions in an Examination Answer Book
- Closed book, but you can bring one A4-sized sheet of your own notes

For complete instructions see:

www.cse.unsw.edu.au/~cs9024/Finalinstructions.pdf

# Final Exam (cont)

## Sample Open Question

1. Consider inserting the following values into an initially empty AVL tree:

```
15 30 35 8 25 22 3 21
```

   Show the order that values would be displayed if we traversed the resulting tree in each of the following orders:

   a. Postorder (LRN)

   b. Level order

2. Design an algorithm that takes a Binary Search Tree (BST) as input and modifies the values of all nodes by adding the height of the node to the current value. Analyse the time complexity of your algorithm depending on the number *n* of nodes in the input tree.

# Final Exam (cont)

## Sample Multiple-Choice Questions

1. Consider a red-black tree storing *n* items. Which of the following is not true?
   - Searching for an entry takes *O(log n)* time in the worst case.
   - The height of the tree is always greater or equal to the height of the corresponding 2-3-4 tree.
   - A black node with two red children corresponds to a 3-node in a 2-3-4 tree.
   - There may be two consecutive black nodes on a branch.

2. How many character comparisons does the Boyer-Moore algorithm need to find a match of the pattern **`car`** in the text **`racecars`**?
   - 4
   - 5
   - 6
   - 7

# Revision Strategy

- Re-read lecture slides and example programs
- Read the corresponding chapters in the recommended textbooks
- Review/solve problem sets
- Invent your own variations of the weekly exercises (problem solving is a skill that improves with practice)

# Supplementary Exam

You can apply formally for special consideration

- a supplementary examination may or may not be granted
- a supplementary examination is typically more difficult than the original examination

If you attend an exam

- you are making a statement that you are "fit and healthy enough"
- it is your only chance to pass (i.e. no second chances)

If you do not meet the requirements for passing but achieve an overall score of ≥47: You can sit the supplementary exam, in which you must score 50% or higher to pass with an overall mark of 50.

# Assessment

Assessment is about determining how well you understand the syllabus of this course.

If you can't demonstrate your understanding, you don't pass.

In particular, we don't pass people just because …

- please, please, … my parents will be ashamed of me
- please, please, … I tried *really hard* in this course
- please, please, … I'll be excluded if I fail COMP9024
- please, please, … this is my final course to graduate
- etc. etc. etc.

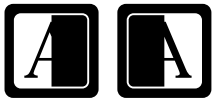
Failure is a fact of life. For example, my scientific papers or project proposals get rejected sometimes too.

# Assessment (cont)

Of course, assessment isn't a "one-way street" …

- I get to assess you in the final exam
- you get to assess me in UNSW's MyExperience Evaluation
  - go to *https://myexperience.unsw.edu.au/*
  - login using *zID@ad.unsw.edu.au* and your zPass

Response rate (as of last Tuesday): 12.8%



Please fill it out …

- give me some feedback on how you might like the course to run in the future
- even if that is "Exactly the same. It was perfect this time."

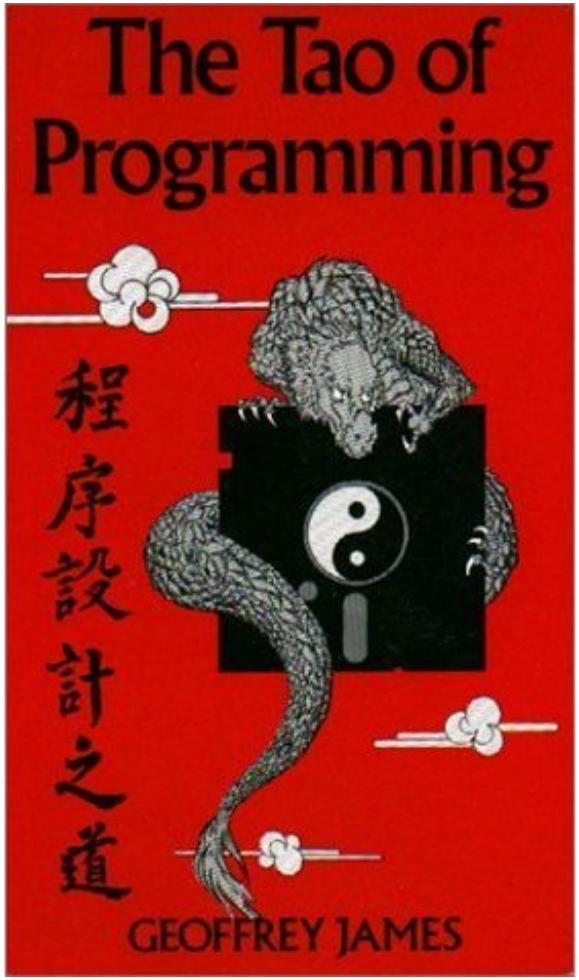
# Summing Up …

# So What Was the Real Point?

The aim was for you to become a better computer scientist

- more confident in your own ability to design data structures and algorithms
- with an expanded set of fundamental structures and algorithms to draw on
- able to analyse and justify your choices
- ultimately, enjoying the software design and development process

# Finally …




Book 9
Epilogue

Thus spake the Master Programmer:

*"Time for you to leave."*

# Finally … (cont)

## That's All Folks

**Good Luck with the Exams**

**and with your future studies**