COMP20005 Engineering Computation

Wrap-up

Semester Two, 2016

October 19, 2016

Exam instructions

- The exam is based primarily around the writing of functions.
- In a function, the initial values of the important variables are supplied as arguments, and the final values to be computed are either returned directly, or returned into other variables via the use of pointer arguments. Output is normally only generated in error situations.
- That is, unless you are explicitly instructed otherwise, there is usually no need for scanf and printf in functions.

Exam instructions

- When it says, “write a function”, you may (and sometimes should, if there is repeated computation) write more than one function. But one of them must be the “answer” in terms of name and type.
- You may use library functions unless explicitly prohibited in that question. If you do make use of library functions, be sure to add a suitable #include line.
- Use #define to declare constants before using them.

Exam expectations

You need to be able to:

- Write functions (including recursive functions) of a small number of arguments, returning a value calculated from those arguments (Chapters 2, 3, 4, 5);
- Write functions that modify their arguments using pointers (Chapter 6);
- Write functions that take 1d and 2d arrays as arguments, and use or modify the array contents in some way (Chapter 7), including for searching/sorting;

Exam expectations

- Design structures for representing classes of information, and use those structures in programs and functions (Chapter 8);
- Have broad knowledge of problem solving techniques, and of the types of problem that each is suited to (Chapter 9);
- Understand number representations for int, float and double types, and the limitations of those representations (Chapter 13.2); and

Exam expectations

- Be familiar with methods used to solve numerical problems, including:
  - root finding
  - numerical integration
  - interpolation and curve fitting
  - differential equations representing physical phenomena
  - systems of linear equations (Gaussian elimination)

Exam preparation

- Start well in advance (now!)
- Lay out a study schedule that balances your exam timetable against particular subject needs.
- Put a copy of your exam timetable in a place where others will see it too.
- Scale back your social activities and other commitments.
- Do (some of) your study with other people committed to passing.
- Read all the relevant sections of the book again (or for the first time), and not just the lecture slides.

Exam preparation

- Write lots of functions, especially the ones in the chapter exercises.
- Read the subject web site from top to bottom.
- Read the additional lecture slides on the LMS.
- Review the on-line workshop solutions.
- Study the sample solution to the projects.
- Leave early for the exam, and have a taxi fare in your pocket.
- Eat well, sleep well, and make sure you get regular sunshine and exercise.

Exam technique

- Highlight the key words in each question. Look out for the words write a function.
- Watch out also for you may, you should, and you may not.
- Draft answers using the blank pages.
- If you cannot write the C code, write answers in English describing the approach you planned to use.
- Be brief and to the point in any written answers.
- Be neat. Use a black or blue pen. No red or green or purple! And no liquid paper.
- Ask yourself “what are they testing with this question?”. Then try and deliver.
- See if you can include a surprise at some stage - an extension, or insightful comment to make the marker smile.

Exam preparation

- If you think you have found a mistake in the examination paper, state what your assumptions going forward are, and what the alternative assumptions might have been.
- Then continue on the basis of your assumptions.
- Don't get agitated, and don't just freeze and do nothing. We will assess your response to the unexpected situation, whether that situation was planned or not.

FAQ

- Yes, you will receive your Assignment 2 feedback and mark before the exam.
- Yes, there will be a Q&A session; at 4:00-6:00pm, 11/11/2016, Room 8.14, Doug McDonell Building (Building 168).
- Yes, I'll continue to respond to emails.

C programming is fun!

- We all think that C Programming is fun!, and find computing a fascinating discipline. If we have managed to pass some of that excitement on to you during this subject, then we have achieved our objective.
- Good luck with your exams!

Subject experience survey

- Please take three minutes over the next few days to complete the on-line form, linked from the LMS.
- We do read all the written comments, and do try to incorporate the feedback that is provided.
- But for that to be possible, we do need you to provide thoughtful feedback.