21 Exam format and review

The exam will be a 3-hour takehome exam. The exam papers are customised, and each student will be e-mailed a copy of the paper at the appropriate time.

Four questions, each worth 20 marks; the maximum mark is 60. You will receive credit for your best three answers.

The exam is worth 50% towards your mark for the course, and the coursework is worth 50%, half for programming assignments and half for quizzes.

A specimen paper from last January is posted on the web.

For preparation, it is best to familiarise yourself with the notes, the quizzes, and the programming assignments.

Exam questions can include the following.

- Header files `stdio.h, stdlib.h, string.h`.
- Converting decimal to short int and vice-versa; converting a fraction to float. Possibly full int and double. Conversion between different bases.
- Correct use of `scanf()` and `fgets()` for inputting data. Correct use of `printf()` for printing data.
- ASCII code: alphabetic and digit. Remember that `char` is regarded weirdly as 8-bit ones' complement. Also if d is a digit ('0'...'9') then $d -' 0'$ is its value as a decimal number.
- Arrays in programming, and address calculation for entries in one- and two-dimensional arrays.
- `string.h`, calloc, `snprintf()`.
- Connection between arrays and pointers. Imitating one- and two-dimensional arrays using pointers and `calloc()`.
- Simulating nonrecursive and recursive functions.
- Evaluating expressions, conversion and casts.
- Spotting errors in C code.
- Writing *correct* C code, either a single routine or a full program. Routines may be specified as recursive or not recursive.
- Loop invariants