XX10190 Programming and Discrete Mathematics

INFORMATION FOR STUDENTS

- This is a two-semester 12 credit course. The course has a moodle page, see: http://moodle.bath.ac.uk/. The unit coordinator is Professor J.H. Davenport (Dept of Computer Science).

- Lecturers: Prof J.H. Davenport (Dept of Computer Science), with Prof A. Spence (Dept of Mathematical Sciences, first semester) and with Prof G.K. Sankaran (Dept of Mathematical Sciences, second semester).

- Examinations There will be 2 formal examinations, one in January, worth 15% of final mark (1 hour in length with 1 answer booklet), and one in May, worth 35% of final mark (2 hours in length with 2 answer booklets).

- Assessed Coursework The assessed coursework will count for 50% of the final mark for the unit. This will consists of three take-home assignments and a class test. The class test will be held in the computing labs in the first week of Semester 2 (4–8 February 2013). All students in the course are required to be present in Bath for the class test. The take-home coursework during first semester (one piece worth 14% of the overall mark) will be set on Monday 19 November, and will be due at 6 p.m. on Friday 14 December. Note that failure to get at least 80% of the weekly programming exercises (see below) ‘ticked’ will result in a deduction from the coursework mark. Dates for Semester 2 will be posted at the start of Semester 2.

Deadline extensions for coursework for any reason (medical etc.), can only be granted by the Director of Studies (mailto:maths-dos@rt.bath.ac.uk). Extensions are not given for the weekly programming exercises — any illness should be coped with by the fact that you only need 80% to be ticked. Major issues again should be discussed with the Director of Studies. Late arrivals should discuss this problem with the Unit Leader (mailto:J.H.Davenport@bath.ac.uk) as soon as possible after arriving.

- Lecture Notes: You are advised to keep contiguous sets of your own lecture notes for each of the lecturers separately. You should be aware that the course contains material in both programming and in mathematics and that the lecturing style for each of these parts is sometimes necessarily different. In particular some of the programming lectures will contain live demonstrations and computer projector presentations, some of which will be available after the lecture through the Moodle page. However much additional information will also be given in these lectures and it is crucial that you complement any information given on the Moodle page with your own handwritten notes taken in lectures.

- Weekly schedule
  - Full class hours: Monday, 9.15 and 13:15, Tuesday 12:15. A nominal two-thirds of this time will be used for delivering new material. The other one-third will be used for giving solutions to previous weeks’ homework.
  - Lab Tutorials: (Room 2E1.14): Fridays (including 5 October) at 08:15, 09:15, 13:15, 14:15 and 15:15. Each Lab Tutorial will be divided into subgroups and a dedicated tutor allocated to each subgroup. The subgroups and the names of the tutors will be posted on the course Moodle page. You must attend the tutorial session assigned to you.
- **Workshops**: Each week there are three workshops, offered on a drop-in basis, in which you can get additional tutoring on the Mathematics exercises. Please note that the Workshops do not cover the Programming part of the course which is tutored through the Lab tutorials.

- Students having questions about the course material should consult their tutor during the lab tutorial hour. In addition they may approach the lecturer at the end of any lecture class. The unit email address is xx10190-lecturers@bath.ac.uk, but with the large number of students, this is not guaranteed to be read immediately.

- **Weekly work** Weekly work will be set in the class on Monday at 13.15. This will also be posted on the course moodle page. The weekly work will consist of both mathematics exercises and programming exercises.

  For the mathematics exercises set on Monday of week \( n \), students should hand in their written solutions by 17.15 on the Thursday of week \( n + 1 \). **Unless instructed otherwise, your written work should be handed in to your tutor’s pigeon hole situated on level 1 of building 4West, near the lift.** Your tutor may leave several folders in his/her pigeon hole. If so please make sure that you submit your work in the correct folder. Model answers will be discussed in one of the full class sessions in week \( n + 2 \). Marked work with comments will normally be handed back to students in week \( n + 2 \). This weekly written work does not constitute a formal part of the assessment.

  For programming tickable exercises set in week \( n \), students have to complete these before their tutorial in week \( n + 1 \). They will be interviewed individually by tutors in the tutorial to check that the exercise has been done and will be marked on a “pass/fail” basis. The tutors will keep a record of the passes by “ticks” against names on the class list. **Students are required to achieve passes on 80% of the “tickable” programming exercises in order to qualify for full credit on the assessed coursework.**

- **Feedback on work** is given in the following ways.

  - **Weekly Maths work** written by the tutor when he/she hands it back. Queries about this should be raised with the tutor or a roving mathematics tutor in the lab.

  - **Programming exercises** orally by the tutor when ‘ticking’ it. Note that a tick doesn’t mean “perfect”, and a tutor might say, for example, “that’s OK, but next time pay more attention to comments”, for example.

  - **Programming Coursework** Feedback via Moodle.

- **January exam** Students will get told their mark via Moodle, and general feedback on the examination will be given in problem classes.

- **February Class Test** Students will get told their mark via Moodle, and general feedback on the examination will be given in problem classes. In addition it will be possible to see the marked script.

- **Summer examination** Students will receive a consolidated examination mark via SAMIS.

- **Set text book** There is a set custom text book for this course and students are requested to purchase this. Exercises will be set from it and it will be the only supporting material allowed into the examinations. The text is

  **XX10190 Programming and Discrete Mathematics**, published by CENGAGE (2012 edition, with additional material provided by the lecturers).

  and it contains portions of the two books.
Note that previous editions have different numberings and different material, and are not suitable.

Copies are available in Blackwell’s on Campus. The cost is £40.

Additional complete copies of Chapman and Epp are available in the University Library.

- **Additional help outside class time:** MASH (The Mathematics and Statistics Help Service) supports this unit on a drop-in basis. You will be able to go there if you want at certain times of the week and get help on both the mathematics and the programming exercises. You can find more information at [http://www.bath.ac.uk/study/mash/](http://www.bath.ac.uk/study/mash/).

**Matlab**

The programming part of the course is taught using the software system MatLab, more specifically MatLab version 2012b. It is available on the University’s central service called Unidesk. To use it from a machine in 2E1.14 or a public machine in the library, you follow these steps.

1. Click on the “Microsoft globe” (normally bottom-left corner), as indicated in Figure 1, then on “All programs”, as indicated in Figure 2.

2. Scroll down the options until you find MatLab, and, if necessary, click on this, then on “R2012b”, until you get the equivalent of Figure 3.

3. After you select this, you will get (may take a minute or so) a screen like Figure 4. This is the equivalent of Figure 1.1 in Chapman (page 5), but looks rather different. However, the main component are there are in the right places: it’s only the top of the screen that looks different. It is possible to make MatLab take up the whole of the screen by clicking the button on the top right, circled in red in Figure 4.

![Figure 1: Initial Desktop screen](image-url)
Figure 2: Desktop screen with “All programs” selected

Figure 3: Desktop screen with “MatLab 2012b” ready for selection
Figure 4: Desktop screen with MatLab 2012b running normally