MS4101
Mathematics Laboratory

August 30, 2016

Material for this course is freely available via the Web at http://jkcray.maths.ul.ie/ms4101.html.

Purpose of Course

- Introduce the Matlab numerical programming language
- Introduce the LaTeX document preparation language
- Apply Matlab to the solution of simple numerical models
- Brief introduction to the Maple symbolic algebra package

1 Introduction

1.1 Timetable

- Lectures: Monday 12:00 C1–060 & Tuesday 10:00, S1–15.
- Labs: Wednesday 15:00 (Group 2B) & Wednesday 16:00 (Group 2A), C2-062

1.2 Structure of Course

- The course is based on the document "Introduction to Matlab" in http://jkcray.maths.ul.ie/ms4101/IntroMatlabGriffiths.pdf
- This material is made freely available by its author, David Griffiths.
- It may be copied freely provided the author's rights are preserved.
- You should print a copy for your own use.
- You should buy a USB stick/flash memory drive for use in this & other modules.

- In the two lectures every week, new material from the "Introduction to Matlab" will be covered.
- The class is divided into two Groups (2A & 2B) for lab purposes.
- You must attend your assigned lab class each week in C2-062 where each student will work with Matlab on a PC with help from the lecturer.
- In Week 2, a visiting lecturer will give an introduction to LaTeX, a free software package for mathematical document preparation.
- See http://miktex.org/download/ for LaTeX download and http://jkcray.maths.ul.ie/ms4101/LaTeX-Files/ for the introductory LaTeX material for Week 2.
- At the end of the week you will have a copy of LaTeX on your laptop and will be able to use it to prepare documents that just contain text (like this) or mathematics like this:

$$\int_0^\infty e^{-x} dx = 1$$

- Wthout familiarity with LaTeX, you will not be able to complete your project.
- A copy of the Matlab software package will be made available to you free of charge for use on your laptop — details to be announced.
- In the meantime
  - The Octave software package is a free implementation of most of the features of Matlab.
  - It may be downloaded from https://www.gnu.org/software/octave/download.html

1.3 Assessment

- A Matlab project will be assigned midway through the semester for at least 30% of your grade for the module.
- A PC-based end-of-semester assessment will determine the remainder of your grade.
- An attendance record will be kept.