MT4113, Computing in Statistics

Lecture 0 - Introduction to Module

17 September 2018

Welcome to MT4113 Computing in Statistics!

Module instructors:

- Len Thomas len.thomas@st-andrews.ac.uk

Module tutor:

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- Len Thomas len.thomas@st-andrews.ac.uk
- Eiren Jacobson ej45@st-andrews.ac.uk

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Module tutor:

- Fanny Empacher fe21@st-andrews.ac.uk

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- Help me get a job (in industry or research)
    - Computers are essential tools in both pure and applied statistics, and most other walks of life
    - Many job applications require experience with given computer packages
    - Here, we'll be using one of the dominant packages in statistical computing: R

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    - Sooner or later, we need to automate a set of tasks, or extend software to perform new tasks
    - For this to go smoothly, we need to know how to write efficient, re-useable programs that work
    - Good programming practice will be a major theme of this module – a very transferrable skill

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  - By contrast, we will (briefly) cover some some simple, robust, computer-intensive methods that are very powerful yet make only weak assumptions about the data.

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  - By contrast, we will (briefly) cover some some simple, robust, computer-intensive methods that are very powerful yet make only weak assumptions about the data.
  - We will also cover methods for optimizing functions – useful for things like maximizing likelihoods.

Why am I taking this module? IV

This module will:

- Help me with other modules

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This module will:

- Help me with other modules
    - R and general programming skills will be useful in other modules and project work.

Why am I taking this module? V

- Err. . . my course requires me to take a computing module and this looked the least worst option!

Approximate Syllabus

- Fundamental programming principles (Len & Eiren), Weeks 1-3

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- Computer-intensive statistics (Len), Weeks 4-5

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- Fundamental programming principles (Len & Eiren), Weeks 1-3
- Computer-intensive statistics (Len), Weeks 4-5
- Optimization methods (Eiren), Weeks 7-8
- Code performance, reproducibility and graphics (Eiren & Len), Weeks 9-10

Timetable

- Format: Mix of lectures (Mondays (odd) LTC, Wednesday LTC, 12-1pm) and computer practicals (Friday Comp. classroom, 12-2pm)

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  - The Moodle site is the module handbook.

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- If you have a registered request for flexible deadlines, please discuss this with me or Eiren at the end of this class

Attendence Monitoring

New University-level policy

As with all 3000-5000 Level taught modules in the School of Mathematics and Statistics attendance will be monitored at various points over the semester. This is to comply with UKVI regulations and to monitor student wellbeing.

For MT4113 attendance will be taken at the practicals of Friday 12th October and Friday 16th November.

Notice

This module requires considerable time investment to reach your potential (nominal work load for all 15 credit modules is 150 hours, including class time).