

Computing for Mathematics: individual coursework

Instructions

Write a 3 page report on a mathematical topic. Consider the target audience of your report to be first year mathematics students wanting to learn about a given topic. Your report is to be written in LaTeX and must use aspects of programming (Python and/or Sage) to illustrate the particular topic.

You are encouraged to choose your own topic, if you do so I recommend checking with me (Vince Knight) that the topic is appropriate. If you are unable to choose a topic select one from the following:

- Convergence of sequences,
- Complex numbers,
- Solving differential equations,
- Random events in probability.

You are encouraged to include the code used as an appendix (if you use Sage, including a link to a published sheet is appropriate).

Marking scheme

The following marking scheme will be applied:

- **Code** (50% weighting)
 - 50%: Appropriate code used with concepts learnt in lab sheets.
 - 70%: Code from lab sheets used to demonstrate concepts clearly.
 - 90%: Code used is a combination of code learnt in class and individually researched. Used to explain concepts in a clear and original way.
- **Content** (30% weighting)
 - 50%: The content is correct and basic aspects of the topic are explained.
 - 70%: The content is correct and some research has been undertaken to show interesting aspects of the topic.
 - 90%: The topic chosen is very original and a great understanding is shown.
- **Presentation** (20% weighting)
 - 50%: The work is well written with no or little graphical content and also contains grammatical and spelling mistakes.
 - 70%: The work is well written with some graphs and images and minor grammatical and spelling mistakes.
 - 90%: The work is clear, well written with excellent quality graphs and images with no grammatical and spelling mistakes.

Example

A model solution is available [here](#).

How the model solution would have been marked is [here](#).

Submitting

Deadline for this work to be handed in is *Thursday of Week 11*.

You will submit this work in two ways:

- Via learning central using turnitin. Find the assessment section of the Computing for Mathematics module. You will **only** submit the pdf this way and turnitin will check it for plagiarism. **You will only be able to do this once!**
- Put **all your files** (.tex, .pdf, .py, .sws etc...) in a folder named studentnumber (**YOUR STUDENT NUMBER**). Place this folder in the directory named: MA1003 Coursework in the Shared Drive. **Importantly: this directory has particular read and write permissions so you will only be able to do this once!**

Showcases

Here are some past reports by your peers:

- [Fractals](#)
- [Prime Number Theory](#)
- [Relationship between Integration and Differentiation](#)
- [Snakes and Ladders](#)
- [Linear Algebra](#)
- [Towers of Hanoi](#)
- [Convergence of Sequences](#)
- [Matrix Transformations](#)