L3cture app

If you have access to the L3cture app, connect to Eduroam wifi with your standard university username and password and start it.

If you haven't got a smartphone, or don't want to take part, that's fine.

If you receive any error messages using the app, taking a screenshot and emailing it to me would be very helpful!

Referencing and plagiarism

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To help with the group project, here's more about what counts as plagiarism and how to properly attribute your sources.

Plagiarism

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Even if you don't intend to mislead, including work that was originally written by someone else without explicitly saying so counts as plagiarism.

Examples of plagiarism

Consider the following paragraph, taken from the Wikipedia entry on Fermat's Last Theorem.

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> *In number theory, Fermat's Last Theorem (sometimes called Fermat's conjecture, especially in older texts) states that no three positive integers* a*,* b*, and* c *can satisfy the equation* $a^n + b^n = c^n$ *for any integer value of* n *greater than two.*
> *This theorem was first conjectured by Pierre de Fermat in 1637 in the margin of a copy of Arithmetica where he claimed he had a proof that was too large to fit in the margin. The first successful proof was released in 1994 by Andrew Wiles, and formally published in 1995, after 358 years of effort by mathematicians."*

Here's a re-write.

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> *Fermat's Last Theorem (sometimes called Fermat's conjecture) is a result of number theory which states that there are no positive integers a, b, and c which satisfy the equation $a^n + b^n = c^n$ if n is an integer greater than two.*
> *Pierre de Fermat conjectured this result in 1637. He claimed he had a proof that was too large to fit in the margin of a copy of Arithmetica, where he had written the conjecture. After 358 years of effort by mathematicians, it was sealed by Andrew Wiles, who formally published a proof 1995.*

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Let's try again.

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> *Fermat's Last Theorem is a result of number theory. It states that, given a positive integer n greater than two, there are no positive integers a, b, and c which satisfy $a^n + b^n = c^n$. In older books, it is sometimes referred to as Fermat's conjecture.*
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Here's another go.

In 1637, Pierre de Fermat wrote in the margin of a book "It is impossible to separate a cube into two cubes, or a fourth power into two fourth powers, or in general, any power higher than the second, into two like powers. I have discovered a truly marvellous proof of this, which this margin is too narrow to contain".[1] In other words, it is impossible to find integers a, b and c satisfying $a^n + b^n = c^n$ whenever n is an integer greater than 2. This statement has become known as *Fermat's Last Theorem*.

Fermat's 'marvelous proof' was never uncovered and, remarkably, the theorem remained unproved until Andrew Wiles, using techniques of modern number theory, published a rigourous 150-page proof in May 1995.[2]

---

[1] `http://wikipedia.org/wiki/Fermat's_Last_Theorem`

[2] `http://wikipedia.org/wiki/Wiles'_proof_of_Fermat's_Last_Theorem`

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Notice, also, that facts are referenced with their sources.

Referencing

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In the Week 4 lab sheet, there were examples of how to cite sources in LaTeX. In webpages, one usually uses hyperlinks to link directly to the material.

For your upcoming group project, it is also a good idea to also have a page of references on your website.

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> *The formal definition is found on Wolfram Mathworld.*

In addition, you should use phrases like "the following is taken from ..." or simply "(see ...)".

There is much more advice on referencing, plagiarism, and good practice on the University of Wisconsin's excellent Writer's Handbook.

Plagiarism and computer code

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The internet is helpful for learning to program. There are websites which help people when they are stuck. Also, in web-design it is possible to view the source of webpages.

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Sophisticated programs that do not match the general standard of work in the project are likely to cause suspicion, so do not ask for help from a friend who is a talented programmer.

HTML/CSS

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I will allow any features of the course webpage to be used on your sites.

L3cture question

Scenario 1

You are doing a project about recurrence relations. You visit the Wikipedia page (which has lots of information) and base your work on a re-write of a small selection of the material found there.

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Acceptable? No! This project is based on a single source. You must find more information to base your project on.

Scenario 2

You want to write a function which carries out the Newton-Raphson procedure for finding a root. You search the internet and find a script written in C++ which does the job. You change the program line-by-line into Python commands and submit it as part of your project.

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Acceptable? No! Your program is still based on someone else's work, so counts a plagiarism. The only way to stop this being an offense is to be completely explicit about where the code originated and what you had done.

Scenario 3

You want to calculate the determinant of a matrix in your Python code. Searching the internet, you find a page explaining that `numpy.linalg.det()` is the command you need. You use the command in your script without comment.

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Acceptable? Yes! This is good use of the internet to develop programming skills.

Scenario 4

You want to calculate the determinant of a matrix in your Python code. Searching the internet, you find a page explaining that `numpy.linalg.det()` is the command you need. You can't get it to work, so post on a forum for advice. You are shown how to use it, and put the command in your script without comment.

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Acceptable? No, but almost!

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Acceptable? No, but almost! You need to be careful here. Please ask on the course discussion board instead.

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If you have any doubts about what you can and can't use, you should contact me.

Working in groups

Aristotle (384BC–322BC)

The whole is more than the sum of its parts.

Metaphysica

For the first project you will work in groups of four.

For the first project you will work in groups of four. The ability to work in a group is a valuable skill that is desired by employers.

Group working: the benefits

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Another benefit is in the sharing of knowledge. Group members can learn from each other, and this can again lead to better overall results.

Group working: the hazards

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Often, problems can be traced back to a communication breakdown.

Communicating well

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Remember, everybody's brain is different. You will find some people easier to communicate with than others.

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- Don't send messages when angry. Wait until you've calmed down.
- For serious disagreements, try to meet face to face instead.

Dysfunctional groups

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In most workplaces people have some uncooperative colleagues.

Group Project 1

The first group project will be launched in the Week 12 presentation lecture.

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You will begin the project with discussions in your groups, so it is important to attend. Non-attendance will be chased up.

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More advice will be given next week.

About Computer Lab 10

In Computer Lab 10 we will look at how spreadsheets can help with mathematical investigations.