MAS116/7 Presentation Lecture 6: Use of Unfair Means and Mini-Project 1

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1: Use of unfair means

Use of unfair means

'Use of unfair means' refers to what is informally described as 'cheating'.

You must make sure you understand what is meant by unfair means as you can be penalised for using unfair means even if you do it unintentionally.

Ignorance is no defence.

The onus is on you to ensure that you have not used unfair means.

Some university examples

The university webpages says that the use of unfair means involves any attempt by a student to

- ▶ gain unfair advantage over another student in the completion of an assessment or exam, or
- ▶ assist someone else in gaining an unfair advantage.

The webpage mentions the use of AI and also gives the following examples of the use of unfair means.

- ▶ Plagiarism
- ▶ Essay or code buying
- ▶ Coursework sites
- ▶ Collusion
- ▶ Fabrication

You must read the university pages.

Use of unfair means in the mini-project

Last year **three** students were penalised for using unfair means during the mini-project.

These were for the following.

- ▶ Plagiarism.
- ▶ Use of AI.
- ▶ Obtaining work from an unknown source.

2: Referencing and plagiarism

2.1: Plagiarism

Plagiarism is, according to the Oxford English Dictionary,

> *"The practice of taking someone else's work or ideas and passing them off as one's own."*

(Notice that I've referenced the source!)

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

Avoiding plagiarism

In order to avoid plagiarism (and subsequent penalties) you must do two things.

(i) Avoid direct copying of words from elsewhere (unless you use quotaton marks).

(ii) Cite every source that you use.

2.2: Examples of plagiarism

An excerpt from the "Fermat's Last Theorem" [Wikipedia]

"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."

A "rewrite" of the excerpt

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.

This is plagiarism!

A "rewrite" of the excerpt

> *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.*
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This is plagiarism!

The highlighted pieces are taken, almost word perfect, from the original.

It doesn't help that the ordering of the phrases has been changed, or that some sentences are slightly different.

The overall tone and meaning is the same.

A second attempt at rewriting

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.

Originally stated, but not proved, by Pierre de Fermat in 1637, Andrew Wiles formally published a proof 1995, some 358 years later. Interestingly, Fermat claimed he had a proof, but that it was too large to fit in the margin of the book where he had written his conjecture.

This still plagiarism!

The two paragraphs still contain exactly the same information as in the original case, and some of the same phrases are still there.

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How do we avoid this

Almost always, the key idea is to use more than one source.

You need to become something of an expert on the subject first then write an account based on your knowledge.

You must avoid phrases that appear elsewhere, unless they appear in quotes or are standard constructions.

It is best if you write your account without the sources infront of you, but just your notes.

An acceptable rewrite

*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

This is now clearly different. It contains a selection of the facts from the original paragraph, along with information from elsewhere.

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

2.3: Referencing

A key part of avoiding unintentional plagiarism is proper referencing of sources.

This is not sufficient to avoid plagiarism, but is certainly necessary.

In a lab sheet, there were examples of how to cite sources in LaTeX.

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

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2.4: Plagiarism and computer code

Another place you must avoid plagiarism is in your Python code.

The internet is helpful for learning to program.

There are websites which help people when they are stuck.

It can often be easy for us to recognise Python code which has not been written by a student.

We find such code every year.

Scenario 1

You are doing a project about the Collatz conjecture.

You visit the Wikipedia page (which has lots of information) and base your work on a re-write of a selection of the material found there.

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.

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.

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.

Acceptable?

No, but almost!

You need to be careful here.

Please ask on the course discussion board instead.

Most likely you will know when you are breaking the rules.

Suspicion is unlikely to occur if you are doing things right!

If you have any doubts about what you can and can't use, you should ask on the Discussion Forum.

3: Launch of the mini-project

The mini-project

Look at the project brief.