Power Point 00 - What is Bioinformatics

The main purpose of this talk is to establish an appropriate answer to the question "What is Bioinformatics?"

As a swift search with google will confirm, there are number of definitions that vary widely in formality, length and completeness.

It would appear that there is considerable freedom to choose a meaning for the term Bioinformatics to fit different circumstances.

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Just search for the term with google and you will see what I mean.
Suggestions you might find range from a sentence or two to several paragraphs of deep and meaningful discussion!

Perhaps the "best" definition will depend on the context in which it is to be applied. In our case, the course upon which you are about to embark.

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You will already be familiar with the primary aim of this course, which is to provide a first Introduction to Bioinformatics

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and its intended audience, which is Biologists with little or no experience of using Bioinformatics in their studies.

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Both of which would suggest the use of a relatively uncomplicated definition that covers all the asects of Bioinformatics that you will meet in the course of the next few weeks.

Perhaps:

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"The design, construction and use of software tools to generate, store, annotate, access and analyse data and information relating to Molecular Biology"

Well ... I did say "relatively" uncomplicated?

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In this course, the emphasis will largely be on the use of simple software tools, rather than there construction

However, it is increasingly the case that basic programming skills and familiarity with statistical packages is an essential of Bioinformatics, even at the introductory level.

Typical projects are now are sufficiently diverse that it is not safe to assume a ready made software tool will always be available for every purpose.

Some capacity to customise and order the available analytical tools is an extremely important skill.

Also many projects now require the analysis of vast amounts of sequence related data.

This is not possible without a reasonable understanding of basic statistics and a familiarity with the related software tools.

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In this course, the emphasis will largely be on the access & analysis of data & information rather than their generation or their storage and annotation in databases.

Most access and analysis can be achieved with web-based resources, the use of which are normally quite straight forward. Generating data and storing it, with its interpretation, into databases is much more demanding. A good informatics foundation is essential.

This is a little unfortunate as, whilst constructing databases is not a common requirement of an individual project, generating sequence related data often is.

However, full control over the current software tools associated with modern sequencing techniques requires a moderately good grasp of the Linux operating system as seen from the command line. Something beyond the gentle introduction you will be offered as part of this course.

Accordingly, a fully consideration of modern high volume sequencing was considered to be something best tackled separately and subsequently to the current training schedule.

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And now it is your turn! To think though a few simple issues.
Maybe when you have come to an individual or group opinion, you would like to submit your views for course wide consideration?

I imagine you will be likely to change you views as the course proceeds, so there is no real necessity for an instant response, just a bit of preliminary investigation and evaluation

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So first ... my definition of Bioinformatics. I feel sure this can be improved! Feel very free to be cruel.

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Computational Biology is certainly related to Bioinformatics, but not (in the judgement of most) the same thing. Take a look at a few definitions

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and come to your own conclusions.

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If you agree with the majority view that Computational Biology and Bioinformatics differ, what do you consider to be the differences and the points of overlap?

Time for tea? Next we consider some of the individual elements of Bioinformatics, concentrating on those to be presented to you in the coming weeks.