Editorial

Today, there are a large number of university bioinformatics courses being offered worldwide. The content of these is quite variable. Bioinformatics is not generally considered to be a discipline in its own right at the undergraduate level. A typical model is that of a one year MSc course, possibly leading to a PhD, for graduates coming from a biological, computer science or mathematical (especially statistical) background. The problem for our MSc student is that he/she needs to rapidly master two out of three novel, quite daunting, disciplines (statistics/computing/molecular biology).

The question of scope then arises. This is a vexed question as 'bioinformatics' is ill-defined and means different things to different people. It certainly approaches mathematical biology and computational biology but these extend further. It probably does not include much of ecology and taxonomy. A point of reference is that the data are molecular and analyses deal with DNA, RNA, protein, metabolites and their interactions. Does systems biology go beyond bioinformatics? Perhaps not, except that bioinformatics attempts to gather the experimental observations and explain them. Systems biology attempts to integrate all these results into a model of a living cell, organism, ecosystem...

Given the large number of courses, we can ask if the number of qualified bioinformaticians being produced is too many, too few or just right. This is another very difficult question to answer. Certainly, only a very few can expect to find employment in industry. Bioinformatics has already experienced a boom and bust in the biotechnological and pharmaceutical sectors. Although the potential for exploitation is huge the current reality of that exploitation is not. With the majority of genome projects being in the public sector, the prospects of employment there are much better. Bioinformatics may be providing the training ground for a wide variety of careers in the 21st century in the same way that a classical education did in the 19th century. Training in the most important applied (statistics), most technologically advanced (computing) and most rapidly advancing (molecular biology) fields in not a bad start for any career.

In this issue there are reviews on acquisition and analysis of microarray data, text mining and named entity recognition, software agents (a possibly under-exploited tool for genomics) and the inference of network interactions within a cell.

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