

## *Detailed Outline of tutorial S14*

### Basic concepts in biology

- central dogma
- cell functions
- molecular genetics
- automated sequencing of genomes

### Biological Databases

- Why the publicly available data repositories are SO important
- NCBI
- TrEMBL
- KEGG
- A select few file formats in detail

### Sequence alignment and pattern matching

- BLAST
- CLUSTAL-W

### Computational phylogenetics

- Parsimony methods
- Gene ordering methods
- Maximum likelihood methods

### Protein structure prediction

- Secondary structure prediction
- Homology modeling

### Systems biology

- What is systems biology
- The next big thing
- Cell modeling
- multiscale models of heart function

### Grid computing and biology

- An overview of biology grids now in use, and grid projects in progress

### Thoughts and predictions (perhaps rash) about the future of computational biology

- Given the hype surrounding computational biology, it seems worthwhile to spend a few minutes giving one person's view of what's important, and what's baloney, among what you read and hear.

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