**Course: Advanced Bioinformatics**

**Module title: Definitions**

**Module no.: 2**

This module provides some basic definitions for bioinformatics. A recent Google search for "definition of bioinformatics" returned over 43,000 results! In the past few years, as the areas have grown, a greater confusion into these two terms has prevailed. For some, the terms bioinformatics and computational biology have become completely interchangeable terms, while for others, there is a great distinction.

Computational biology and bioinformatics are multidisciplinary fields, involving researchers from different areas of specialty, including (but in no means limited to) statistics, computer science, physics, biochemistry, genetics, molecular There are 1000s of definitions available for this subject. Here I have just picked some relevant definitions which are directly related with computer science.

**Definition 1:** Bioinformatics is the application of computer technology to the management and analysis of biological data.

Computer technology is more related towards automation of software’s related to biological domains.

**Definition 2:** Biologists doing stuff with computers?

What stuff can biologists do with computers? Well, there are plenty, calculation of data, finding patterns and information from data, performing measurements and so on.

**Definition 3**: The design, construction and use of software tools to generate, store, annotate, access and analyze data and information related to Molecular Biology

Research, development, or application of computational tools and approaches for expanding the use of biological, medical, behavioral or health data, including those to acquire, store, organize, archive, analyze, or visualize such data.

Here we consider use of bio-informatics tools rather than their design and construction. Here we consider access and analysis of data and information items rather than their generation, storage or annotation.

**Every application of computer Science to Biology:** Sequence analysis, image analysis, sample management, population modeling

**Analysis of data coming from large-scale biological projects:** Genomes, Transcriptomes, proteomes, metabolomes etc.