UNIT I

Bioinformatics

Term Bioinformatics

Term Bioinformatics was invented by Paulien Hogeweg and Ben Hesper in 1970 as "the study of informatic processes in biotic systems"

Bioinformatics is emerging and advance branch of biological science , contain Biology mathematics and Computer Science.

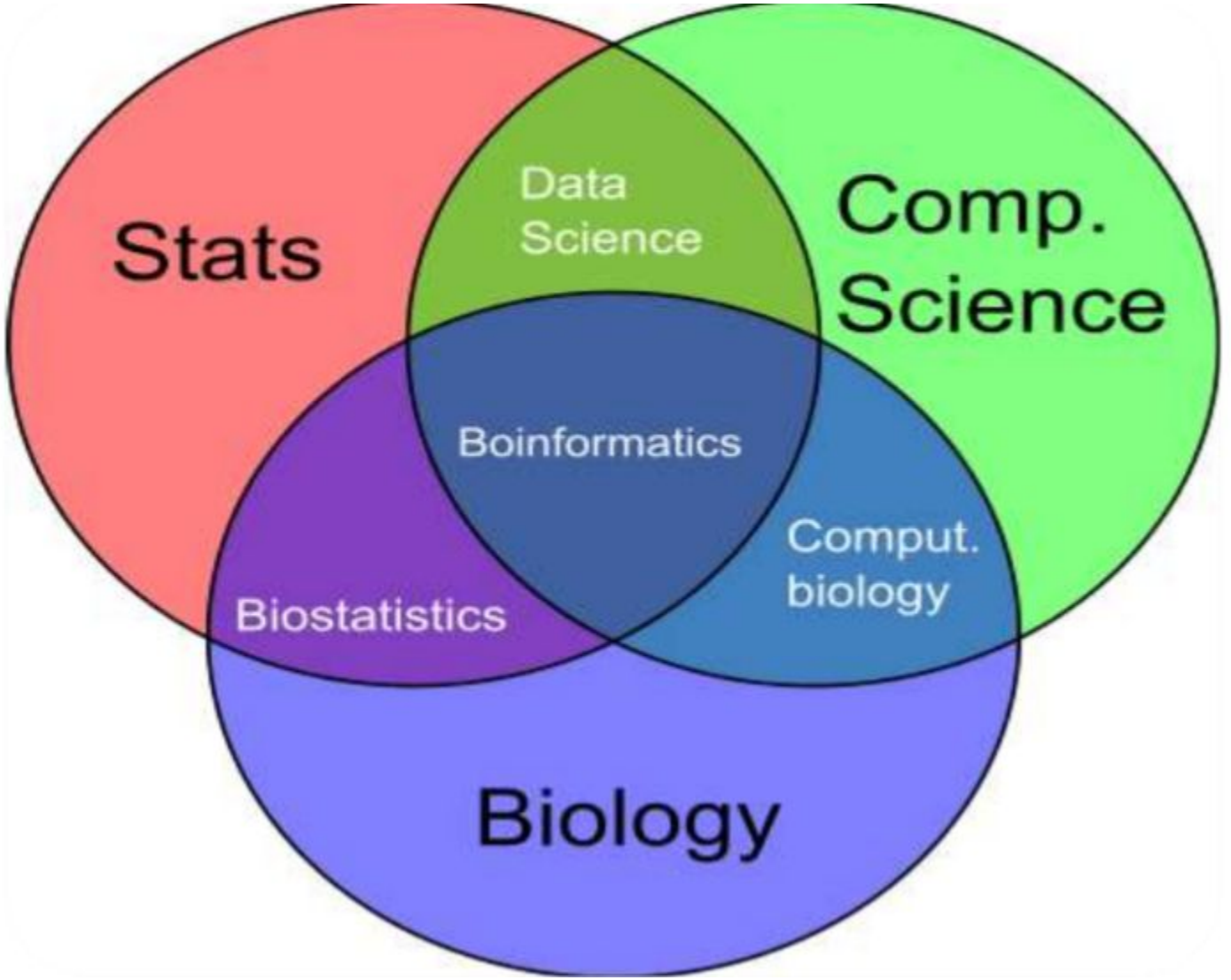
General Definition of Bioinformatics

- General Definition: A computational approach to solves the biological problem.

- Bioinformatics, A logical and technical means by which not only solve the Biological problems but also can predicts the new aspects.

Definition of Bioinformatics

It is an interdisciplinary field that **develops methods and software tools** for **understanding biological data**. As an interdisciplinary field of science, bioinformatics combines computer science, statistics, mathematics, and engineering to **analyze and interpret biological data**.


Stats
Data Science
Comp. Science
Boinformatics
Biostatistics
Comput. biology
Biology

Need of Bioinformatics

- The huge amount of Biological data.
- The need for bioinformatics has arisen from the recent explosion of publicly available genomic information, such as resulting from the Human Genome Project.
- Gain a better understanding of gene analysis, taxonomy, & evolution.
- To work efficiently on the rational drug designs and reduce the time taken for the development of drug manually

Goals of Bioinformatics

- To uncover the wealth of Biological information hidden in the mass of sequence, structure, literature and biological data.
- It is being used now and in the foreseeable future in the areas of molecular medicine.
- It has environmental benefits in identifying waste and clean up bacteria.
- In agriculture, it can be used to produce high yield, low maintenance crops.

Applications of Bioinformatics

- Experimental Molecular Biology
- Genetics and Genomics
- Generating Biological Data
- Analysis of gene and protein expression
- Comparison of genomic data
- Understanding of evolutionary aspect of Evolution
- Understanding biological pathways and networks in System Biology
- In Simulation & Modeling of DNA, RNA & Protein

Thank You