Training Course- 1 (Beginners)
Introduction to Bioinformatics

Introduction:
Bioinformatics is the mathematical, statistical and computing methods that aim to solve biological problems using DNA and amino acid sequences and related information. Thus, Bioinformatics involves the integration of computers, software tools, and databases in an effort to address biological questions. Each of these important areas in bioinformatics aims to understand complex biological systems. Each of these important areas in bioinformatics aims to understand complex biological systems.

Beneficiaries:
Scientists, researchers, undergraduate students and post graduate students who are interested in biological and computational research. This includes medical, veterinary, agricultural, aquaculture and many other biology related fields.

Duration:
This intensive training course will be held during five successive days, 10 hours per day. During this course they will be able to have good understanding of some useful bioinformatics tools to be applied in their own research.

Day 1-(Biology 101: Biology preliminary and Introduction to Bioinformatics)
- Bioinformatics Tools and software (Sequence Analysis- Manipulation – Search- Features- Retrieval- Alignment-Phylogeny ……)
- Becoming an Instant Expert with PubMed/Medline
  - Finding out about a protein by its name
  - Searching PubMed using author's names
  - Searching PubMed using fields
  - Searching PubMed using limits
  - A few more tips about PubMed

Day 2- (DNA Sequence Analysis)
- Similarity Searches on Sequence Databases
  - Retrieving DNA Sequences.
  - Not all DNA is coding for protein
  - Going from protein sequences to DNA sequences.
  - Retrieving the DNA sequence relevant to my protein
- Comparing Two Sequences (Pair wise alignment)
- Building a Multiple Sequence Alignment.
- Editing and Publishing Alignments

Day 3- (Molecular Biology Tools)
- Gene Identification- Vector databases
- (PCR & Primer design-Translation-Restriction Analysis ……)

- Sequence processing and Regulation
- Retrieving Protein Sequences
- ExPASy: A prime Internet site for protein information
- More advanced ways to retrieve protein sequences
- Retrieving a list of related protein sequences-

- Resources by Subject
- Ten Major Databases
- Ten Major Bioinformatics Software Programs
- Ten Major Resource Locators
- Some Places to Find Out What's Really Going On