

Course contents submitted for Computational Biology and Bioinformatics

1. Faculty: FLSB

2. Course Code:

3. Course Title: Computational Biology and Bioinformatics

4. Number of Credits: Three

5. Course objective:

Students will get theoretical and experiment foundations for Computational Biology and Bioinformatics. The course will also provide an introduction to the analysis of protein structure, DNA sequences, and gene expression. Through practical exercises, the course aims to give students basic competence in the use of various bioinformatical tools.

6. Minimum prerequisites for taking this course, if any: Bachelors degree in life sciences or allied areas.

7. Course structure with units, if applicable:

- a) Introduction to Bioinformatics
- b) Biological databases and resources
- c) Sequence alignment theory and applications
- d) Protein structural bioinformatics
- e) DNA Microarrays: Principles, and Applications
- f) Next Generation DNA Sequencing: Methods and Applications

8. Reading suggestions:

- Bioinformatics: Sequence, Structure and Databanks: A Practical Approach (The Practical Approach Series, 236), Des Higgins (Editor), Willie Taylor. 1st edition, October 2000, Oxford University Press. ISBN: 978-0199637904.
- Bioinformatics: Sequence and Genome Analysis, David W. Mount. 2nd edition, June 2004, Cold spring harbor laboratory press. ISBN: 978-0879697129
- Introduction to Bioinformatics, Teresa Attwood, David Parry-Smith, 1st edition, May 2001, Pearson Education. ISBN: 978-8178085074
- Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins, Second Edition, Andreas D. Baxevanis, B. F. Francis Ouellette. 3rd edition, October 2004, A John Wiley & Sons, Inc., Publication. ISBN: 978-0471478782.
- "*Bioinformatics for Dummies*" [John Wiley and Sons; [ISBN 0764516965](#)].
- "*Developing Bioinformatics Skills*", [Cynthia Gibas](#) and [Per Jambeck's](#), [ISBN 1565926641](#).

9. Evaluation:

Mid-semester Written Examination	:	40% Marks
End-semester Written Examination	:	40% Marks
Quiz / Assignment/Presentation (oral / poster)/other	:	20% Marks