

Syllabus for Ph.D. course work in Bioinformatics (2010-11)

Compulsory courses: BI/Ph 1 and 5
Optional course: BI/Ph 2 or 3 or 4

BI/Ph1: Research Methodology (5 Credits)*
(Bioinformatics component in Ph1 will be offered by the Bioinformatics Centre)

* Could be organized jointly with students of Biotechnology Department

BI/Ph2: Advances in Bioinformatics- I (5 credits: T+P)

Recent advances (databases, methods & approaches) in any TWO of the following areas (2.5 credits each). The course includes benchmarking of resources (deriving sensitivity and specificity indices) and a case study.

- i. Comparative Genomics & proteomics
- ii. Immunoinformatics
- iii. Metabolic pathway engineering & systems biology
- iv. Molecular dynamics simulations
- v. Biodiversity informatics
- vi. Computational approaches for drug design

BI/Ph3: Advances in Bioinformatics- II (5 credits: T+P)
Development of web-based database & servers

BI/Ph4: Advances in Bioinformatics- III (5 credits: T+P)
Software integration: Development of workflow (2)
Programming skill: Bioperl (any three modules) (3)

BI/Ph5: Scientific writing, presentation and other academic activities (5 credits: T+P)

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| Communication skills (writing & oral)* | (2) |
| Writing research proposal | (1) |
| Seminar presentation | (1) |
| Design & conduct practicals/quizzes for students | (1) |

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