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| Semester                                                                    | AUG 2022                                                                                                                                                                                                                                                |
| Open to semester                                                            | 5,7,11,13,21                                                                                                                                                                                                                                            |
| Course code                                                                 | <b>BI3134/DS3114/BI6124/DS6114</b>                                                                                                                                                                                                                      |
| Course title                                                                | <b>Bioinformatics</b>                                                                                                                                                                                                                                   |
| Credits                                                                     | 4 /4                                                                                                                                                                                                                                                    |
| Course Coordinator & participating faculty (if any)                         | M. S. Madhusudhan                                                                                                                                                                                                                                       |
| Nature of Course                                                            | Lectures and Tutorials                                                                                                                                                                                                                                  |
| Pre-requisites                                                              | Elementary programming skills.                                                                                                                                                                                                                          |
| Objectives (goals, type of students for whom useful, outcome etc)           | This course deals with algorithms to analyse data and to build models that help explain phenomena (biological). The course should equip you to solve problems where data analysis and/or model building is involved.                                    |
| Course contents (details of topics /sections with no. of lectures for each) | The course will (broadly) introduce students to the following - dynamic programming, sequence alignments, hidden Markov models, tree construction, motif finding, neural networks, 3D molecular structure modelling, next generation sequence analysis. |
| Evaluation /assessment                                                      | End-Sem Examination-35%<br>Mid-Sem Examination-35%<br>Others-Quizzes and Assignments = 30%                                                                                                                                                              |
| Suggested readings (with full list of authors, publisher, year, edn etc.)   | Biological sequence analysis. R Durbin, S Eddy, A Krogh, G Mitchison, Cambridge University Press<br>Bioinformatics. David Mount. CBS Publishers and Distributors<br>Introduction to Bioinformatics. Arthur Lesk, Oxford University Press                |