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| Course Title | Bioinformatics | | | | |
| Course Code | BMS312 | | | | |
| Course Type | Compulsory | | | | |
| Level | Bachelor (1st Cycle) | | | | |
| Year / Semester | 3rd Year / 5th Semester | | | | |
| Teacher's Name | TBA | | | | |
| ECTS | 5 | Lectures / week | 2 Hours | Laboratories / week | None |
| Course Purpose and Objectives | The overall objective of the course is the basic understanding of the field of bioinformatics that will enable students to gather information related to their biological inquiries and use computational analysis and web-based bioinformatics tools and databases to answer a scientific question. | | | | |
| Learning Outcomes | Upon successful completion of the course, students are expected to be able to:<br>• examine the structure and function of genes and proteins through the use of computational analysis, statistics, and pattern recognition<br>• filter, analyze, and display the results of using web-based bioinformatics tools and databases<br>• write, debug, and run small programs<br>• learn how to access new information and how to assimilate it into the whole, in order to continue to learn beyond the limits of this course<br>• have a solid understanding of the scope of bioinformatics | | | | |
| Prerequisites | None | Co-requisites | None | | |
| Course Content | **Description:**<br>This course will explore how computer science and mathematics, supported by information technology, have combined with modern laboratory technologies to solve various problems in the biological sciences. Areas that will be discussed include:<br>•sequence alignment<br>•probability and the significance of results<br>•gene prediction<br>•multiple sequence alignment<br>• functional genomics<br>• use of sequence, gene, and protein databases<br>• use of web-based bioinformatics tools | | | | |

<table>
<tr><td></td><td>• DNA sequencing and assembly<br>It should be noted that students will not develop or implement bioinformatics algorithms but rather solve bioinformatics problems with written exercises, and web-based queries.</td></tr>
<tr><td>Teaching Methodology</td><td>Face- to- face</td></tr>
<tr><td>Bibliography</td><td>"Understanding Bioinformatics"<br>Author: Marketa Zvelebil, Jeremy Baum<br>ISBN: 9780815340249<br>Publisher: Garland Science / Taylor & Francis Group<br><br>"Introduction to Bioinformatics", 4th edition<br>Author: Arthur Lesk<br>ISBN: 9780199651566<br>Publisher: Oxford University Press, USA<br><br>"Practical Computing for Biologists"<br>Author: Steven Haddock, Casey Dunn<br>ISBN: 9780878933914<br>Publisher: Sinauer Associates</td></tr>
<tr><td>Assessment</td><td><table><tr><td>Mid – Term Examination</td><td>30%</td></tr><tr><td>Final Examination</td><td>40%</td></tr><tr><td>Assignments/Lab</td><td>20%</td></tr><tr><td>Class Participation</td><td>10%</td></tr><tr><td></td><td>100%</td></tr></table></td></tr>
<tr><td>Language</td><td>English</td></tr>
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