



## UNIVERSITI TEKNOLOGI MARA

### BDY413: BIOINFORMATICS

<b>Course Name (English)</b>	BIOINFORMATICS <b>APPROVED</b>
<b>Course Code</b>	BDY413
<b>MQF Credit</b>	2
<b>Course Description</b>	This is an introductory course on the uses of mathematical and computational methods to extract information from biological data. It includes the use of computer as a tool for biological research. Students are required to have prior knowledge of theoretical and practical aspects of molecular biology, and computer programming or computer hardware.
<b>Transferable Skills</b>	From this course, student will be able to;  1. To describe the importance of bioinformatics and computational biology in the changing era of genomics 2. To apply computational tools and databases in research 3. To describe revolutionary relatedness among groups of organisms based on bioinformatics.
<b>Teaching Methodologies</b>	Lectures, Discussion, Computer Aided Learning
<b>CLO</b>	CLO1 Describe the importance of bioinformatics and computational biology in the changing era of genomics CLO2 Apply computational tools and databases in research CLO3 Describe revolutionary relatedness among groups of organisms based on bioinformatics
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. Introduction</b> 1.1) N/A	
<b>2. Basics on biological systems</b> 2.1) N/A	
<b>3. Their settlement in natural and mathematical sciences</b> 3.1) N/A	
<b>4. Databases</b> 4.1) N/A	
<b>5. Gene</b> 5.1) N/A	
<b>6. Gene sequence</b> 6.1) N/A	
<b>7. Alignment and pattern discovery</b> 7.1) N/A	
<b>8. Gene profiling</b> 8.1) N/A	
<b>9. Biomolecular Simulations</b> 9.1) N/A	
<b>10. Basic concept</b> 10.1) N/A	

<b>11. Conformational sampling</b> 11.1) N/A
<b>12. Solvation</b> 12.1) N/A
<b>13. Phylogenetics</b> 13.1) N/A
<b>14. Computer tools for phylogenetic analysis</b> 14.1) N/A

Assessment Breakdown	%
Continuous Assessment	50.00%
Final Assessment	50.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Online Presentation	20%	CLO2
	Lab Exercise	Phylogenetic analysis	30%	CLO3

Reading List	Reference Book Resources
	<ul style="list-style-type: none"> <li>• Krane, D.E. and Raymer, M.C. 2003, <i>Fundamental Concepts of Bioinformatics</i>, Pearson Education Inc</li> <li>• Gautham, N. 2006, <i>Bioinformatics: Databases and Algorithms</i>, Alpha Science</li> <li>• Rastogi, S.C., Mendiratta, N. and Rastogi, P. 2006, <i>Bioinformatics: Concepts, Skills and Applications</i>, CBS Publishers and Distributors New Delhi</li> <li>• Sambamurty, A.V.S.S. 2007, <i>Molecular Genetics</i>, Alpha Science</li> <li>• Xiong, J. 2006, <i>Essential Bioinformatics</i>, Cambridge University Press</li> <li>• Ramsden, J. 2009, <i>Bioinformatics: An Introduction</i>, Springer Verlag-London Limited 2009</li> </ul>

<b>Article/Paper List</b>	This Course does not have any article/paper resources
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<b>Other References</b>	This Course does not have any other resources
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