

BIOINFORMATIC ALGORITHM

1	Course Title:	BIOINFORMATIC ALGORITHM	
2	Course Code:	BM5130	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç. Dr. GIYASETTİN ÖZCAN	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	Bilgisayar Müh. Bölüm Binası, 1. kat, oda 107 Tel.:+90 (224) 294 2792 email: gozcan at uludag.edu.tr	
17	Website:		
18	Objective of the Course:	To learn methods and algorithms for analyzing high-volume biological data / signals. To learn how to obtain results that have meaning in medical terms with these methods.	
19	Contribution of the Course to Professional Development:	Understanding biological databases, making the algorithm designs necessary to process these databases	
20	Learning Outcomes:		
		1	Students learn the algorithms which are used to analyze high volume biological data.
		2	Students learn to use probabilistic prediction methods to solve problems.
		3	In terms of medicine, students understand the benefits of the bioinformatics algorithms
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21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Fundamental problems of bioinformatics and its computations		
2	Sequence Alignment Algorithms		
3	Short read sequence alignment		
4	Alignment against database, BLAST		

5	Multiple Sequence Alignment	
6	Motif search algorithms	
7	Probabilistic algorithms	
8	Phylogeny Algorithms	
9	Next Generation Sequencing	
10	Genomic Integration	
11	Biological networks	
12	Secondary prediction	
13	Protein structure prediction	
14	Interaction with cancer drugs	

22	Textbooks, References and/or Other Materials:	1. Richard Durbin, Sean R. Eddy, Anders Krogh, Graeme Mitchison Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acids , 1998
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23	Assesment	
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TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	25.00
Quiz	0	0.00
Home work-project	2	15.00
Final Exam	1	60.00
Total	4	100.00

Activites	Number	Duration (hour)	Total Work Load (hour)
Contribution of Final Exam to Success Grade	60.00		
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Measurement and Evaluation Techniques Used in the Course	4	4.00	16.00
Self study and preparation			
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00

24	ECTS / WORK LOAD TABLE		
Field Studies	0	0.00	0.00
Midterm exams	1	30.00	30.00
Others	0	0.00	0.00
Final Exams	1	52.00	52.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	4	3	1	1	1	0	0	0	0	0	0	0	0	0	0
ÖK2	4	4	4	1	1	1	0	0	0	0	0	0	0	0	0	0
ÖK3	1	1	4	1	1	1	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High
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