

COMPUTATIONAL GENOMICS

1	Course Title:	COMPUTATIONAL GENOMICS	
2	Course Code:	BMB4020	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	8	
7	ECTS Credits Allocated:	5.00	
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:	This course aims to provide suitable tools and methods for solving functional genomic problems in computational terms.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Students learn the algorithms which are used Mechanism of Transcriptional Regulation.
		2	Students learn Predictive Network Models of Transcriptional Regulation.
		3	Learns R programming and genomic computing techniques.
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21	Course Content:		
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Week	Theoretical	Practice	
1	Genetics, biological databases, and high-throughput data sources		
2	R, Bioconductor		
3	Python, Biopython		
4	Alignment against database, BLAST		

5	Probabilistic algorithms	
6	Genome Variance Analysis	
7	GEO database	
8	Phylogeny Algorithms	
9	Mikrodizi teknolojisi	
10	Clustering techniques	
11	Hidden Markov Modelleri	
12	Biological networks	
13	Secondary prediction	
14	Protein structure prediction	

22	Textbooks, References and/or Other Materials:	M. Zvelebil and J. O. Baum, Understanding Bioinformatics, Garland Science, 2008
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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)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	0	0.00	0.00
Homeworks	2	19.00	38.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	50.00	50.00
Others	0	0.00	0.00
Final Exams	1	50.00	50.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			5.00

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LO: Learning Objectives **PQ: Program Qualifications**

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