COMPUTATIONAL MOLECULAR BIOLOGY

1	Course Title:	COMPUTATIONAL MOLECULAR BIOLOGY	
2	Course Code:	BYL4101	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	7	
7	ECTS Credits Allocated:	4.00	
8	Theoretical (hour/week):	1.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None.	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç. Dr. EGEMEN DERE	
15	Course Lecturers:	Yrd. Doç. Dr. Egemen DERE	
16	Contact information of the Course Coordinator:	Uludağ Üniversitesi Fen-Edebiyat Fakültesi Biyoloji Bölümü Görükle Kampüsü, Nilüfer/BURSA 16059 e-posta: edere@uludag.edu.tr Telefon: 0 (224) 294 1792 Uludag University Faculty of Arts and Science Department of Biology Gorukle Campus, Nilufer/BURSA 16059 e-mail: edere@uludag.edu.tr Phone: 0 (224) 294 1792	
17	Website:		
18	Objective of the Course:	The aim of the course is to make the students learn some of the databases and analysis programs. The goals are to teach some of tha databases in Molecular Biology and how to search data using these databases.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Analyse and solve problems using an integrated multidisciplinary approach.
		2	Integrate and evaluate critically information from various sources.
		3	Plan, conduct and write a programme of original research.
		4	Use modern information and communications technologies.
		5	Critically evaluate scientific publications.
		6	Communicate effectively through oral presentations
		7	Devise molecular methodologies for problems

	8	Transfer techniques and solutions from one discipline to another.
	9	
	10	

21	Course Content:

	Course Content:	
Week	Theoretical	Practice
1	Introduction	
2	DNA, RNA, Protein	
3	Primer design, Tm calculation, GC content	
4	How to Search Databases (FASTA, BLAST), NCBI, sequence formats	
5	Alignment of the sequences (clustalW),	
6	protein translator, protein search in NCBI	
7	Restriction enzymes, restriction map NEB cutter	
8	Transcription, translation	
9	Protein Localization, leader sequence, Transmembrane domain finder (TMHMM), signal peptide finder	
10	Entrez, pubmed	
11	Protein motifs, protein 3D, protein digestion	
12	Biochemical pathways, Vecscreen	
13	RNA folding Mfold, tRNA in Genome	
14	Post translational modifications	

22	Textbooks, References and/or Other Materials:	F. ERSOY, Computational Molecular Biology Lecture Notes;
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	**ECTS / WORK LOAD TABLE**

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	1.00	14.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	0	0.00	0.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	40.00	40.00
Others	0	0.00	0.00
Final Exams	1	40.00	40.00
Total Work Load			122.00
Total work load/ 30 hr			4.07
ECTS Credit of the Course			4.00

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	0	4	4	0	4	4	4	0	4	5	5	4	0	0	0	0
ÖK2	0	5	4	0	4	3	5	0	4	5	5	5	0	0	0	0
ÖK3	0	3	5	0	4	3	5	0	4	4	4	5	0	0	0	0
ÖK4	0	5	3	0	0	4	4	0	4	4	4	4	0	0	0	0
ÖK5	0	4	5	0	4	0	0	0	5	5	4	4	0	0	0	0
ÖK6	0	4	3	0	4	0	3	0	5	3	3	4	0	0	0	0
ÖK7	0	4	4	0	3	4	0	0	0	5	5	4	0	0	0	0
ÖK8	0	3	4	0	4	0	5	0	3	4	4	4	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	**1 very low**		**2 low**			**3 Medium**			**4 High**			**5 Very High**				