

COURSE: BIOLOGICAL SYSTEMS

DEGREE: BIOMEDICAL ENGINEERING

## WEEKLY PROGRAMMING

WEEK	SESSION	Description	GROUPS		SPECIAL
			LECTURE	SEMINAR	SESSION (Computer class room, audio-visual class room)
Week 1	1	Introduction to the molecular geometry of organic molecules, description of basic functional groups by means of basic molecular modeling tools.	X		Computer Room
	2	Molecular Geometry and Functional Groups: Practical exercises		X	Computer Room
Week 2	3	Natural Occurring Organic Compounds: lipids, phospholipids and membranes	X		Computer Room
	4	Natural Occurring Organic Compounds: Practical Exercises		X	Computer Room
Week 3	5	Natural Occurring Organic Compounds: carbohydrates and polysaccharides	X		Computer Room
	6	Natural Occurring organic Compounds: Practical Exercises		X	Computer Room
Week 4	7	Natural Occurring Organic Compounds: the energy of a molecule	X		Computer Room
	8	Natural Occurring organic Compounds: Practical exercises		X	Computer Room
Week 5	9	The Structure of Macromolecules: nucleotides as building blocks of DNA, structural analysis and prediction.	X		Computer Room
	10	The Structure of Macromolecules: Practical exercises		X	Computer Room
Week 6	11	The Structure of Macromolecules: aminoacids as building blocks of proteins.	X		Computer Room
	12	The Structure of Macromolecules: Practical exercises		X	Computer Room
Week 7	13	The Structure of Macromolecules: modeling the structure of proteins, ab-initio modeling, homology modeling	X		Computer Room

	14	The Structure of Macromolecules: Practical exercises		X	Computer Room
Week 8	15	The Structure of Macromolecules: comparison, classification and stability of protein structures	X		Computer Room
	16	The Structure of Macromolecules: Practical exercises		X	Computer Room
Week 9	17	The structure of Macromolecules: analysis and prediction of molecular interactions.	X		Computer Room
	18	The Structure of Macromolecules: Practical exercises		X	Computer Room
Week 10	19	The structure of Macromolecules: molecular motions introduction to normal mode analysis	X		Computer Room
	20	The Structure of Macromolecules: Practical exercises		X	Computer Room
Week 11	21	The structure of Macromolecules: molecular motions, introduction to molecular dynamics	X		Computer Room
	22	The Structure of Macromolecules: Practical exercises		X	Computer Room
Week 12	23	The structure of Macromolecules: protein- protein interaction, biology at large scale	X		Computer Room
	24	Introduction to Biological Databases		X	Computer Room
Week 13	25	Nucleic Acid Databases: Ensembl	X		Computer Room
	26	Nucleic Acid Databases and tools. Variation Databases		X	Computer Room
Week 14	27	Protein Databases. Uniprot and BioGRID	X		Computer Room
	28	Metabolite		X	Computer Room

SUBTOTAL

The final grade will come from:

60% final exam. Minimum required mark:  
4

40% Continuous Evaluation:

		3 Homework exercises after finishing main theory bolcs (13.3% each)		
--	--	---	--	--

TOTAL				
-------	--	--	--	--



		1h 40min	
		1h 40min	6
		1h 40min	
		1h 40min	6
		1h 40min	
		1h 40min	6
		1h 40min	
		1h 40min	6
		1h 40min	
		1h 40min	4h 40min
		1h 40min	
		1h 40min	3
		1h 40min	
		1h 40min	3
		1h 40min	
		43h 20min + 82h 40min = 126h	
	Exam		3

