



<b>COURSE: Biomaterials Experimental Design</b>		
<b>DEGREE: Biomedical Engineering</b>	<b>YEAR: 2017/2018</b>	<b>TERM: 2</b>

WEEKLY PLANNING									
WEEK	SESSION	DESCRIPTION	GROUPS (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	Indicate YES/NO If the session needs 2 teachers	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURES	SEMINARS			DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
1	1	Introduction (Overview + objectives)	x					1.6	6
1	2	Finding inspiration in nature: spider silk-based biomaterials	x				Reading of proposed topics. Bibliographic research	1.6	
2	3	Tissue-organ-on a chip	x				Reading of proposed topics. Bibliographic research	1.6	6
2	4	3D Bioprinting I	x				Reading of proposed topics. Bibliographic research	1.6	
3	5	3D Bioprinting II		x			Presentation and discussion of some practical examples, problems and articles	1.6	6
3	6	Analysis of stem cell niches: micro- and nano-scale surface engineering I	x				Reading of proposed topics. Bibliographic research	1.6	
4	7	Analysis of stem cell niches: micro- and		x			Presentation and discussion of some	1.6	6

		nano-scale surface engineering II				practical examples, problems and articles		
4	8	Experimental research I		x		UC3M Bioengineering Labs	1.6	
5	9	Atomic force microscopy of living cells	x			Reading of proposed topics. Bibliographic research	1.6	6
5	10	Experimental research II		x		UC3M Bioengineering Labs	1.6	
6	11	Microfabrication I	x			Reading of proposed topics. Bibliographic research	1.6	6
6	12	<b>CONTINUOUS EVALUATION: TEST</b>					1.6	
7	13	Microfabrication II	x			Reading of proposed topics. Bibliographic research	1.6	6
7	14	Experimental research III		x		UC3M Bioengineering Labs	1.6	
8	15	Biosensors I	x			Reading of proposed topics. Bibliographic research	1.6	6
8	16	Experimental research IV		x		UC3M Bioengineering Labs	1.6	
9	17	Biosensors II	x			Reading of proposed topics. Bibliographic research	1.6	6
9	18	Experimental research V		x		UC3M Bioengineering Labs	1.6	
10	19	Nanotechnologies for drug, protein and gene delivery I	x			Reading of proposed topics. Bibliographic research	1.6	6
10	20	Experimental research VI		x		UC3M Bioengineering Labs	1.6	
11	21	Nanotechnologies for drug, protein and gene delivery II		x		Presentation and discussion of some practical examples, problems and articles	1.6	6
11	22	Experimental research V		x		UC3M Bioengineering Labs	1.6	
12	23	Nanotechnologies for drug, protein and gene delivery III	x			Reading of proposed topics. Bibliographic research	1.6	6
12	24	Experimental research VI		x		UC3M Bioengineering Labs	1.6	
13	25	Nanotechnologies for drug, protein and gene delivery IV		x		Presentation and discussion of some practical examples, problems and articles	1.6	6
13	26	Presentation by students I		x			1.6	
14	27	Presentation by students II		x			1.6	3
<b>Subtotal 1</b>							<b>43.2</b>	<b>81</b>
<b>Total 1 (Hours of class plus student homework hours between weeks 1-14)</b>							<b>124.2</b>	

15		Tutorials, handing in, etc						1.5	
16		Assessment						3	6
17									
18									
<b>Subtotal 2</b>								<b>4.5</b>	<b>6</b>
<b>Total 2</b> ( <i>Hours of class plus student homework hours between weeks 15-18</i> )								<b>10.5</b>	

<b>TOTAL A</b> ( <i>Total 1 + Total 2</i> )	<b>134.7</b>
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LABORATORIES CLASSES PROGRAMMING (*)						
WEEK	SESSION	DESCRIPTION	LABORATORY	WEEKLY PROGRAMMING FOR STUDENT		
				DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
	1	Cationic polymers for gene transfection I	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
	2	Cationic polymers for gene transfection II	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
	3	Microfabrication of microfluidic chips I	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
	4	Microfabrication of microfluidic chips II	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
	5	3D Bioprinting I	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
	6	3D Bioprinting II	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
	7	Smart-hydrogels for drug delivery I	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
	8	Smart-hydrogels for drug delivery II	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
	9	Smart-hydrogels for drug delivery III	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
	10	Discussion of results	UC3M Bioengineering Labs	Teams of 10 students	1.6	1
<b>Subtotal 3</b>					<b>16</b>	<b>10</b>
<b>Total 3</b> ( <i>Hours of class plus student homework hours of ten sessions laboratories</i> )					<b>26</b>	

<b>TOTAL B</b> ( <i>Total 3</i> )	<b>26</b>
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<b>TOTAL</b> ( <i>Total A + Total B. Maximum 180 hours</i> )	<b>160.7</b>
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*(\*) In EPS are given an additional 16 hours of laboratory practices along ten sessions.*