



COURSE: BIOMEDICAL APPLICATIONS OF NANOTECHNOLOGY		
DEGREE: BIOMEDICAL ENGINEERING	YEAR: 2013/2014	TERM: 2nd

La asignatura tiene 29 sesiones que se distribuyen a lo largo de 14 semanas. Los laboratorios pueden situarse en cualquiera de ellas. Semanalmente el alumno tendrá dos sesiones, excepto en un caso que serán tres

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 to nanotechnology. Basic concepts	X				Reading of proposed topics.	1,6	6
1	2	TEM, SEM, AFM	X				Reading of proposed topics.	1,6	
2	3	NMR, Infrared and UV-vis spectroscopy	X				Reading of proposed topics.	1,6	6
2	4	Introduction to Organic chemistry I	X				Reading of proposed topics.	1,6	
3	5	Introduction to Organic chemistry II		X			Examples and exercises	1,6	6
3	6	Bioconjugation techniques with proteins	X				Reading of proposed topics.	1,6	
4	7	Bioconjugation techniques with antibodies	X				Reading of proposed topics.	1,6	6
4	8	Synthesis and characterization of chemical probes I		X			Examples and exercises	1,6	
5	9	Synthesis and characterization of chemical probes II		X			Examples and exercises	1,6	6

5	10	Dendrimers and polymeric particles	X			Reading of proposed topics.	1,6	
6	11	Micelles and liposomes	X			Reading of proposed topics.	1,6	
6	12	Practice 1; Synthesis of dye-loaded liposomes				Practice	1,6	Con formato: Color de fuente: Rojo
7	13	Practice 2; Characterization of liposomes				Practice	1,6	Con formato: Color de fuente: Rojo
7	14	Carbon nanotubes	X			Reading of proposed topics.	1,6	6
8	15	Superparamagnetic nanoparticles I	✗	✗		Examples and exercises	1,6	
8	16	Superparamagnetic nanoparticles II	✗	✗		Reading of proposed topics.	1,6	6
9	17	Gold Nanoparticles, Quantum dots and UCNPs	X			Reading of proposed topics.	1,6	
9	18	Practice 3; Synthesis of citrate-coated gold NPs				Practice	1,6	Con formato: Color de fuente: Rojo
10	19	MRI / Optical probes	X			Reading of proposed topics.	1,6	
10	20	PET / MRI probes	X			Reading of proposed topics.	1,6	6
11	21	Practice 4; Characterization of superparamagnetic NPs				Practice	1,6	Con formato: Color de fuente: Rojo
11	22	Theranostics		X		Examples and exercises	1,6	6
12	23	Nanotech. for cancer		X		Examples and exercises	1,6	
12	24	Nanotech. for Cardiovascular diseases		X		Examples and exercises	1,6	6
13	25	Practice 5; TBA				Practice	1,6	
13	26	Nanotech. and gene therapy		X		Examples and exercises	1,6	6
14	27	Nanotoxicology		X		Examples and exercises	1,6	2
14	28	Scientific paper presentation by students		X			1,6	
	29	Scientific paper presentation by students		X			1,6	
Subtotal 1							48,33	80
Total 1 (Hours of class plus student homework hours between weeks 1-14)							128,33	

15		Tutorials, handing in, etc					1,5	
16		Assessment					3	
17								
18								
Subtotal 2							3	
Total 2 (Hours of class plus student homework hours between weeks 15-18)							4,5	

TOTAL (*Total 1 + Total 2. Maximum 180 hours*)

132,8