



COURSE: REGENERATION AND BIOENGINEERING OF TISSUE AND ORGANS

DEGREE: Biomedical Engineering

YEAR: 2020-2021

TERM: 1

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)
14/09/2020	1	Introduction: Overview and Objectives	X				Formal Class ON LINE	1,6	6
16/09/2020	2	"Journal Club": critical discussion of papers		X			Formal Class	1,6	
21/09/2020	3	Concepts of Embryogenesis and Morphogenesis	X				Formal Class ON LINE	1,6	6
23/09/2020	4	Tissue/Organ Engineering Paradigm I		X			Formal Class	1,6	
28/09/2020	5	Enabling Technologies I– Bioreactors	X				Formal Class ON LINE	1,6	6
30/09/2020	6	Enabling Technologies II - Use of Recombinant Technologies in TE		X			Formal Class	1,6	

05/10/2020	7	Organ Reconstruction I (Implantation, Transplantation & Rejection)	X				Formal Class ON LINE	1,6	6
07/10/2020	8	Organ Reconstruction II (Implantation, Transplantation & Rejection)		X			Formal Class	1,6	
14/10/2020	9	Organ Reconstruction III (Bioartificial Organs and Bioengineering)		X			Formal Class	1,6	3
19/10/2020	10	Organ Reconstruction IV ("Organoids" and Bioprinting)	X				Formal Class ON LINE	1,6	6
21/10/2020	11	Experimental and Bioengineering Research (Introduction)		X			UC3M Bioengineering Labs	1,6	
26/10/2020	12	First Continuous Evaluation Test	X				Test	1,6	3
28/10/2020	13	Experimental and Bioengineering Research I (Stem Cell Isolation, Culture and Expansion)		X			UC3M Bioengineering Labs	1,6	
04/11/2020	14	Experimental and Bioengineering Research II (Scaffold Generation)		X			UC3M Bioengineering Labs	1,6	3
09/11/2020	15	Gene Therapy	X				Invited lecturer ON LINE	1,6	6
11/11/2020	16	Experimental and Bioengineering Research III (Scaffold Generation)		X			UC3M Bioengineering Labs	1,6	
16/11/2020	17	Advance therapy medicinal product: From the bench to the patient	X				Invited lecturer ON LINE	1,6	6
18/11/2020	18	Experimental and Bioengineering Research IV (Tissue/Organ Bioengineering)		X			UC3M Bioengineering Labs	1,6	
23/11/2020	19	Government regulations for engineered tissues	X				Invited lecturer ON LINE	1,6	6
25/11/2020	20	Experimental and Bioengineering Research V (Tissue Construct Analysis)		X			UC3M Bioengineering Labs	1,6	
30/11/2020	21	Experimental and Bioengineering Research VI (RTPCR)	X				Formal Class ON LINE	1,6	6
02/12/2020	22	Paper presentation I		X			Formal Class	1,6	
09/12/2020	23	Paper presentation II		X			Formal Class	1,6	3
14/12/2020	24	Second Continuous Evaluation Test	X				Test	1,6	
Subtotal 1								38.4	66
Total 1 (Hours of class plus student homework hours between weeks 1-14)								104.4	
	25	Tutorials, handing in, etc					Final review		3

	26	Assessment						Exam	3	
	27									
	28									
Subtotal 2									6	
Total 2 (Hours of class plus student homework hours between weeks 15-18)									6	
TOTAL A (Total 1 + Total 2)									109.4	

LABORATORIES CLASSES PROGRAMMING (*)							
WEEK	SESSION	DESCRIPTION	LABORATORY	WEEKLY PROGRAMMING FOR STUDENT			
				DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)	
	1	Stem Cell Harvesting, Isolation and Cell Culture Expansion	UC3M Bioengineering Labs	Teams of 6 students	2	1	
	2	Scaffold Generation	UC3M Bioengineering Labs	Teams of 6 students	2	1	
	3	Scaffold Generation II	UC3M Bioengineering Labs	Teams of 6 students	2	1	
	4	Tissue/Organ Bioengineering	UC3M Bioengineering Labs	Teams of 6 students	2	1	
	5	Tissue Construct Analysis	UC3M Bioengineering Labs	Teams of 6 students	2	1	
	6	Biomolecular characterization of tissues I (RT-PCR)	ON LINE		2	1	
1					Subtotal 3	12	6
Total 3 (Hours of class plus student homework hours of ten sessions laboratories)						18	
TOTAL B (Total 3)						18	
TOTAL (Total A + Total B. Maximum 180 hours)						127.4	

() In EPS are given an additional 16 hours of laboratory practices along ten sessions.*