

PRINCIPLES OF CELL CULTURE

1	Course Title:	PRINCIPLES OF CELL CULTURE
2	Course Code:	THE5012
3	Type of Course:	Optional
4	Level of Course:	Second Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	2.00
8	Theoretical (hour/week):	1.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	NONE
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. ZEHRA MİNBAY
15	Course Lecturers:	Prof. Dr. Zehra Minbay
16	Contact information of the Course Coordinator:	zminbay@uludag.edu.tr 224 29554064 B.U.U.Tıp Fakültesi Histoloji ve Embriyoloji AD, Nilüfer BURSA
17	Website:	
18	Objective of the Course:	The aim of this course is to for students to provide the background for cell culture manipulations by conveying the basic knowledge such as as basic principles and physicochemical requirements of cell culture, cell culture types, asepsis and antisepsis techniques, media and other solutions used, contamination in cell culture, subculture and preservation of cells.
19	Contribution of the Course to Professional Development:	This course is important in terms of providing basic knowledge and skills within the scope of in master degree education.
20	Learning Outcomes:	
	1	Knows the general layout of the cell culture laboratory and the devices used in the laboratory
	2	Describe laboratory safety and aseptic techniques
	3	Know the principles of animal cell culture techniques
	4	Know the basic applications of cell culture technique including trypsinizing cells and cell counting, determination of cell viability
	5	Hücre kültürü türlerini listeler, primer kültür, sekonder hücre kültürü, hücre hattı, organ kültürü organotipik and histotipik kültürü tanımlar.List types of cell cultures and define primary culture, secondary cell culture, cell line, organ culture, organotypic and histotypic cultures.
	6	Know media constituents and media formulation strategies for mammalian cell culture
	7	Explain cell culture contamination, describe major cell culture contaminants
	8	Know the storage conditions of cells
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21	Course Content:	

	Course Content:				
Week	Theoretical		Practice		
1	Introduction: Advantages and disadvantages of cell and tissue culture, and biology of cultured cells				
2	Design and layout for a cell culture laboratory, laboratory equipment and features				
3	Aseptic techniques and laboratory safety				
4	Aseptic techniques and laboratory safety				
5	Cell culture media and constituents				
6	Cell culture types and basic principles				
7	Primer Culture and its advantages and disadvantages				
8	Subculture and cell lines, transformation, immortalization				
9	Measurable parameters in cell culture 1				
10	Measurable parameters in cell culture 2				
11	Contamination and contaminants in cell culture 1				
12	Contamination and contaminants in cell culture 2				
13	Solution of problems in cell culture				
14	Cell thawing and cryopreservation				
Activites			Number	Duration (hour)	Total Work Load (hour)
Theoretical			Invitrogen/Gibco. Cell Culture Basics. Handbook. Fundamental Techniques in Cell Culture. Handbook, 4th edition. Life Technologies, Gaithersburg, MD, USA. 2002. 1100 pages.	10.00	10.00
Practicals/Labs			0	0.00	0.00
Self study and preperation			RJ Geraghty, A Capes-Davis, JM Davis, et al. Guidelines for the use of cell lines in biomedical research. British Journal of Cancer. 1996; 74: 1041-1045.	2.00	2.00
Homeworks			0	0.00	0.00
Projects			S. Inchern. Basic Techniques in Animal Cell Culture. Drug Delivery System Workshop August 19-20, 1999: Bangkok, Thailand.	0.00	0.00
Field Studies			0	0.00	0.00
Midterm exams			CD Helgason, C Miller. Methods in Molecular Biology. Basic Cell Culture Protocols, 3rd edition. Humana Press. 2002. 1000 pages.	0.00	0.00
Others			3	2.00	6.00
Final Exams			G Vunjak-Novakovic, R Freshney. Culture of Cells for Tissue Engineering. John Wiley & Sons, Inc. Hoboken, NJ. 2002. 1000 pages.	8.00	8.00
Total Work Load					56.00
Total work load/ 30 hr			JM Davis. Basic Cell Culture. 2nd edition. Oxford University Press. 2002.		1.87
ECTS Credit of the Course					2.00
23	Assesment				
TERM LEARNING ACTIVITIES		NUMBE R	WEIGHT		
Midterm Exam		0	0.00		
Quiz		3	30.00		
Home work-project		0	0.00		
Final Exam		1	70.00		
Total		4	100.00		
Contribution of Term (Year) Learning Activities to Success Grade		30.00			
Contribution of Final Exam to Success Grade		70.00			

Total									100.00								
Measurement and Evaluation Techniques Used in the Course									Measurement and evaluation are performed according to the Rules & Regulations of Bursa Uludağ University on Undergraduate Education.								
24		ECTS / WORK LOAD TABLE															
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	5	5	2	3	2	2	0	0	2	2	0	0	0	0	0	0	
ÖK2	5	3	2	3	2	2	0	0	0	2	0	0	0	0	0	0	
ÖK3	5	4	3	5	3	1	0	0	2	0	0	0	0	0	0	0	
ÖK4	4	4	2	2	3	1	0	0	0	0	0	0	0	0	0	0	
ÖK5	5	4	3	4	4	4	0	0	0	0	0	0	0	0	0	0	
ÖK6	5	5	2	4	4	4	0	0	0	0	0	0	0	0	0	0	
ÖK7	5	4	3	5	5	5	0	0	2	3	0	0	0	0	0	0	
ÖK8	4	4	2	5	5	5	0	0	0	0	0	0	0	0	0	0	
LO: Learning Objectives PQ: Program Qualifications																	
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High				