AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Basic Laboratory Principles and Methods of Stem Cell							
Course Code		KHÜ503		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	198 *(Hours)*	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		The aim of this course is to provide students with a comprehensive perspective on basic and applied research for stem cells (basic and clinical), to provide students with the ability to interpret multidisciplinary research methods in relation to the general stem cell knowledge of students.							
Course Content		Basic laboratory methods, laboratory preparation steps, stem cell culture, molecular methods related to stem cells are explained.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Individual Study					
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	60
Assignment	1	20

Recommended or Required Reading	
1	Sell S, Stem Cells Handbook, Humana Press, second edition, 2013
2	Alberio R, Epiblast Stem Cells, Humana Press, Methods and protocols,Wiley Blackwell, 2013
3	Regad T, Sayers TJ, Rees R, Principle of Stem Cell Biology and Cancer,
4	Healy L, Ruban L, Atlas of Human Pluripotent Stem Cells in Culture, Springer, 2015
5	Rich IN, Stem Cell Protocols, Humana Press, 2015

Week	Weekly Detailed Course Contents	
1	Theoretical	Course description and general concepts
2	Theoretical	Stem Cell Research Laboratories and Infrastructure
3	Theoretical	Preparation steps in stem cell research (sample preparation, purification, spectral techniques, immune techniques,)
4	Theoretical	Preparation steps in stem cell research (electrophoresis, blotting)
5	Theoretical	Preparation steps in stem cell research (hybridization, microscopy)
6	Theoretical	Cell isolation techniques
7	Theoretical	DNA, RNA and Protein Isolations in Stem Cell Research
8	Intermediate Exam	Mid-term exam
9	Theoretical	PCR in Stem Cell Research
10	Theoretical	Epigenetic methods in stem cell research
11	Theoretical	Special staining and imaging techniques in stem cell research
12	Theoretical	Cell culture in stem cell research (basic techniques) -I
13	Theoretical	Cell culture in stem cell research (basic techniques) -II
14	Theoretical	Cellular treatments
15	Final Exam	Final exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	13	1	2	39
Assignment	2	20	2	44
Laboratory	13	1	2	39
Midterm Examination	1	24	2	26

Final Examination	1	48	2	50
			Total Workload (Hours)	198
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Explain basic laboratory methods and principles
2	Examine preparation stages in stem cell research
3	Explain stem cell culture theoretically and practically
4	Examine molecular methods in stem cell research
5	Examine the use of cell culture in stem cell research

Programme Outcomes *(Stem Cell and Regenerative Medicine Interdisciplinary Master)*	
1	To have comprehensive and in-depth knowledge of Stem Cell and Regenerative Medicine
2	To have information about stem cell production and characterization
3	To learn stem cell sources, stem cell types and their differences
4	To understand the molecular and genetic structure of stem cells
5	To be able to learn and make stem cell culture methods
6	To be able to adapt the knowledge in the field of stem cells to research in line with current developments
7	To be able to use molecular laboratory methods used in stem cell research
8	Learning in vitro disease models and in vivo experiments related to stem cells
9	To have knowledge about stem cell therapies and clinical use
10	Conduct independent research in accordance with the principles of research and publication ethics

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	4	3	3	4	4
P2	4	5	5	4	4
P3	3	3	3	3	3
P4	4	3	3	4	4
P5	4	4	4	4	4
P6	2	2	2	2	2
P7	3	3	3	5	5
P8	2	2	2	2	2
P9	2				