



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Developmental Biology and Molecular Embryology							
Course Code		KHÜ521		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	6	Workload	145 (<i>Hours</i>)	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		To explain the molecular and cellular approaches in embryo and its development with the help of new technologies.							
Course Content		Molecular investigation of embryo fertilization, embryo development, migration and movement of cells in embryo, development of organs, Embryo gene regulation and gene tracking technologies, embryo culture, and embryo imaging technologies are discussed.							
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	R. Lanza, J. Gearhart, B. Hogan, D. Melton, R. Pederson, E.D. Thomas, J.Thomson, I. Wilmut. Essentials of Stem Cell Biology. Academic Press
2	Lewandowski M, Mouse Molecular Embryology, Methods and Protocols, Humana Press, 2014.
3	Sharpe P, Mason I, Mouse Molecular Embryology, Methods and Protocols, Humana Press, 2008.
4	Kubiak JZ, Mouse development, from oocyte to stem cell, Humana Press, 2012

Week	Weekly Detailed Course Contents	
1	Theoretical	Fertilization and embryo
2	Theoretical	Development hierarchy in embryo and cell fate
3	Theoretical	Development of germ layers
4	Theoretical	Neural crest cells and their importance in development
5	Theoretical	Epithelial mesenchymal transition event
6	Theoretical	Development of organs and artificial organs
7	Theoretical	Assistive reproductive technologies
8	Intermediate Exam	Mid-term exam
9	Theoretical	Animal models used in developmental biology studies
10	Theoretical	Transgenic embryo technology
11	Theoretical	Genome regulation technologies in embryo
12	Theoretical	Embryo and organ culture technologies
13	Theoretical	In situ hybridization
14	Theoretical	Cell sorting technologies

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	13	1	2	39
Assignment	2	14	1	30
Midterm Examination	1	24	2	26



Final Examination	1	48	2	50
Total Workload (Hours)				145
[Total Workload (Hours) / 25*] = ECTS				6
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Learn the importance of stem cells in embryo development.
2	Understand the movements of the cells in the embryo and the stages of organ development.
3	Examine embryo culture and animal models.
4	Gains knowledge of new molecular and imaging technologies.
5	Have knowledge about transgenic embryo technology

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	3	3	3	4	3
P4	3	3			3
P5			3	3	
P6	3	3	3	4	3
P7			3	3	
P8	3	3	4	3	3

