Graduate School of Health Sciences / Microbiology Ph.D.

2024 - 2025 Academic Year

LABORATORY ROTATION I

Syllabus

Course Description					
Name	**Code**	**Semester**	**T+A Hour**	**Credit**	**ECTS**
LABORATORY ROTATION I	MKBD1122150	Fall Semester	0+0	0	6

Prerequisites Courses	
Recommended Elective Courses	
Language of Instruction	Turkish
Course Level	Third Cycle (Doctorate Degree)
Course Type	Elective
Course Coordinator	Res.Assist. Feyza BAYRAMOĞLU
Name of Lecturer(s)	Prof.Dr. Lütfü HANOĞLU, Prof.Dr. Esra ÇAĞAVİ, Assist.Prof. Derya CANSIZ
Assistant(s)	Course Supervisor: Prof. Dr Esra Çağavi, Course LaboAssistants: Laboratory supervisor from Research Institute for Health Sciences and Technologies (SABITA),
Aim	The aim of the "Laboratory Rotation-I" course is for Ph.D. level students to explain the advanced technical approaches in scientific research, the basic laboratory equipment usage instructions, and laboratory application that will be incorporated to the thesis work by understanding the scope of different laboratory disciplines. By rotating in different labs every week, students are aimed to explain laboratory safety and instructions and practice advanced molecular biology techniques, proteomics and genomics applications, flow cytometry and analysis, histology applications, microscopy imaging systems and image analysis, cell culture and experimental animal laboratories.
Course Content	This course contains; Advanced Molecular Biology Techniques-1, Lab-1,Advanced Molecular Biology Techniques-2, Lab-2,Electrophysiology laboratory,Advanced Molecular Biology Techniques-3, Lab-3,Cell Culture applications,Fluorescence-activated Cell Sorting (FACS),Lab notebook evaluation,Immunohistochemistry,Medicinal Chemistry and drup applicaitons,Genomics and Proteomics Methodology,Microscopy Imaging and analysis,Medical Research Centre (MEDITAM) and experimental animal models-I,Medical Research Centre (MEDITAM) and experimental animal models-II,Final.

Course Learning Outcomes	**Teaching Methods**	**Assessment Methods**
Explain the advanced experimental methods and analysis approaches in molecular miology, proteomics, genomics, immunohistochemistry, imaging systems and analysis, cell culture and experimental animal laboratories.	14, 17, 2, 9	A, E
Incorporate, do research and apply new research techniques with the thesis subject.	14, 17, 2, 9	A, E
Explain and provide solutions to various different experimental techniques.	14, 17, 2, 9	A, E
Define the principles of basic research laboratory equipments and can operate these devices.	14, 17, 2, 9	A, E
Explains the advanced data analysis approaches of scientific data.	14, 17, 2, 9	A, E
Explain and evaluate the workplace and biological safety instructions in the laboratory.	14, 17, 2, 9	A, E

Teaching Methods	14: Self Study Method, 17: Experimental Technique, 2: Project Based Learning Model, 9: Lecture Method
Assessment Methods	A: Traditional Written Exam, E: Homework

Lecture Schedule

Sequence	**Topics**	**Preliminary Preparation**
1	Advanced Molecular Biology Techniques-1, Lab-1	Self-study
2	Advanced Molecular Biology Techniques-2, Lab-2	Self-study
3	Electrophysiology laboratory	Self-study
4	Advanced Molecular Biology Techniques-3, Lab-3	Self-study
5	Cell Culture applications	Self-study
6	Fluorescence-activated Cell Sorting (FACS)	Self-study
7	Lab notebook evaluation	Self-study and lecture notes
8	Immunohistochemistry	Self-study
9	Medicinal Chemistry and drup applicaitons	Self-study
10	Genomics and Proteomics Methodology	Self-study
11	Microscopy Imaging and analysis	Self-study
12	Medical Research Centre (MEDITAM) and experimental animal models-I	Self-study
13	Medical Research Centre (MEDITAM) and experimental animal models-II	Self-study
14	Final	Self-study and lecture notes

Evaluation Methods	**Weight(%)**
Midterm Exam	50
General Exam	50

Resources
Laboratory Biosafety Manuel(Third edition) 1. Containment of biohazard 2. Laboratoaries - standards 3. Laboratory infection - prevention and control 4. Manuals I. Title . ISBN 92 4 154650 6 (LC/NLM classification: QY 25) WHO/ CDS/ CSR/ LYO2004. 11Internet database