

TOROS ÜNİVERSİTESİ

Vocational School
Medical Laboratory Techniques

Course Information

MOLECULAR BIOLOGICAL TECHNIQUES					
Code	Semester	Theoretical	Practice	National Credit	ECTS Credit
		Hour / Week			
TLT203	Fall	2	2	3	4

Prerequisites and co-requisites	None
Language of instruction	Turkish
Type	Required
Level of Course	Associate
Lecturer	Lec. Tiınçe AKSAK
Mode of Delivery	Face to Face
Suggested Subject	None
Professional practise (internship)	None
Objectives of the Course	To provide students with knowledge and skills about molecular biological methods
Contents of the Course	General information about molecular methods, Molecular methods in laboratory, DNA isolation methods, PCR methods, Preparing PCR mix, Preparing agarose, Agarose gel electrophoresis, RFLP methods, Multiplex PCR method, Blotting techniques and usage.

Learning Outcomes of Course

#	Learning Outcomes
1	It isolates DNA from various body fluids and tissues.
2	Prepare agarose gel
3	Apply and evaluate molecular methods such as PCR
4	Making and evaluating RFLP
5	To learn and evaluate blotting techniques and their usage

Course Syllabus

#	Subjects	Teaching Methods and Technics
1	General information about molecular methods	Lecture, Powerpoint presentation, Question-answer, Practical method
2	The place and importance of molecular methods in routine laboratories	Lecture, Powerpoint presentation, Question-answer, Practical method
3	DNA isolation methods from microorganism, human blood and tissue samples	Lecture, Powerpoint presentation, Question-answer, Practical method
4	DNA isolation from microorganism, human blood and tissue samples	Lecture, Powerpoint presentation, Question-answer, Practical method
5	Polymerase chain reaction (PCR), real time PCR and PCR variants	Lecture, Powerpoint presentation, Question-answer, Practical method
6	Chemical substances and buffers required for PCR	Lecture, Powerpoint presentation, Question-answer, Practical method
7	To prepare PCR, to make Mix distribution and to provide amplification	Lecture, Powerpoint presentation, Question-answer, Practical method

8	Mid-Term Exam	Questions and Answers
9	Weighing and resolving the agarose, Preparing the agarose tank and pouring the agarose	Lecture, Powerpoint presentation, Question-answer, Practical method
10	Apply, execute and visualize agarose jeline DNA	Lecture, Powerpoint presentation, Question-answer, Practical method
11	Preparing the RFLP mixture, distributing the mixture and initiating the cut	Lecture, Powerpoint presentation, Question-answer, Practical method
12	To apply and evaluate the agarose jeline RFLP product	Lecture, Powerpoint presentation, Question-answer, Practical method
13	Prepare the multiplex PCR mix, make the distribution of the multiplex PCR mixture and start the amplification	Lecture, Powerpoint presentation, Question-answer, Practical method
14	Blotting Techniques	Lecture, Powerpoint presentation, Question-answer, Practical method
15	Blotting Techniques	Lecture, Powerpoint presentation, Question-answer, Practical method
16	Final Exam	Questions and Answers

Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	Responsible Instructor Course Contents		
2	Temizkan G, Arda N (2008). Moleküler Biyolojide Kullanılan Yöntemler, Nobel Tıp Kitabevi.		
3	Muhsin Konuk (2004). Moleküler Biyoloji, Nobel yayınevi.		
4	Hames BD, Rickwood D. (1990). Gel electrophoresis of proteins, Oxford Un. Pres.		

Method of Assessment

#	Weight	Work Type	Work Title
1	30%	Mid-Term Exam	Mid-Term Exam
2	20%	Laboratory	Laboratory
3	50%	Final Exam	Final Exam

Relationship between Learning Outcomes of Course and Program Outcomes

#	Learning Outcomes	Program Outcomes	Method of Assessment
1	It isolates DNA from various body fluids and tissues.	1,2,3,5,6,7,8,9,10,12,13	1,2,3
2	Prepare agarose gel	1,2,3,5,6,7,8,9,10,12,13	1,2,3
3	Apply and evaluate molecular methods such as PCR	1,2,3,5,6,7,8,9,10,12,13	1,2,3
4	Making and evaluating RFLP	1,2,3,5,6,7,8,9,10,12,13	1,2,3
5	To learn and evaluate blotting techniques and their usage	1,2,3,5,6,7,8,9,10,12,13	1,2,3

PS. The numbers, which are shown in the column Method of Assessment, presents the methods shown in the previous table, titled as Method of Assessment.

Work Load Details

#	Type of Work	Quantity	Time (Hour)	Work Load
1	Course Duration	14	4	56
2	Course Duration Except Class (Preliminary Study, Enhancement)	14	4	56

3	Presentation and Seminar Preparation	0	0	0
4	Web Research, Library and Archival Work	0	0	0
5	Document/Information Listing	0	0	0
6	Workshop	0	0	0
7	Preparation for Midterm Exam	1	2	2
8	Midterm Exam	1	1	1
9	Quiz	0	0	0
10	Homework	0	0	0
11	Midterm Project	0	0	0
12	Midterm Exercise	1	2	2
13	Final Project	0	0	0
14	Final Exercise	0	0	0
15	Preparation for Final Exam	1	2	2
16	Final Exam	1	1	1
				120