

Program for International MSc Students of Biochemistry

Second semester 2021-2022

Course title: Bioinformatics, Credits: 2, Course of coordinator: Dr. Hefez Heidari

Professor	Topics	Session / Date
Dr. Hafez Heidari Dr. Bahreini		

Course title: Bioprotection, Credits: 1, Course of coordinator: Dr. Mitra Nourbakhsh

Professor	Topics	Session / Date
Dr. Mitra Nourbakhsh		Total sessions

Course title: Laboratory methods and skills of working with devices

Credits: 2

Course of coordinator: Dr. Tavakoli

Professor	Topics	Session / Date
Dr. Fallah	Electrophoresis and its types	1 2
Dr. Taheri Pak	DNA extraction, Biochemical computational methods and quality control	3 4
Dr. Tavakoli	Flow cytometry	5
Dr. Tavakoli	Radioimmunoassay and ELISA methods	6
Dr. Bahreini	PCR	7
Dr. Taheri Pak	Real time-PCR	8 9
Dr. Bahreini	Chromatography	10 11
Dr. Nourbakhsh	Types of vertical electrophoresis and blotting	12 13
Dr. Tavakoli	Gene cloning	14 15
Dr. Shabani	NO Analyzer	16
Dr. Fallah	Spectrophotometer	17
Dr. Fallah	Fluorescence	18

Course title: Biochemistry and molecular diagnosis

Credits: 2

Course of coordinator: Dr. Fallah

Professor	Topics	Session / Date
Dr. Nourbakhsh	Cell cycle	1
Dr. Fallah	Types of DNA and RNA	2
Dr. Fallah	Chromatin formation and structures of chromatin and chromosomes	3
Dr. Nourbakhsh	DNA replication in prokaryotic and eukaryotic systems and regulation of gene activity	4
Dr. Nourbakhsh	DNA damage and repair	5
Dr. Fallah	Comparison of genomes in prokaryotes and eukaryotes	6 7
Dr. Nourbakhsh	RNA processing	8
Dr. Fallah	mRNA translation in prokaryotes and eukaryotes and regulation and post-translational modifications	9 10
Dr. Fallah	Regulation of gene expression	11
Dr. Taheri Pak	Nucleic acid techniques	12
Dr. Tavakoli	Isolation, maintenance and use of stem cells	13
Dr. Tavakoli	Use of DNA tests to detect clinical specimens	14
Dr. Taheri Pak	Use of molecular detection methods in infectious diseases	15
Dr. Bahreini	Applied methods in molecular biology and production of recombinant proteins	16 17
Dr. Nourbakhsh	Briefly about phages, viruses, fungi and animal cells, culture, isolation	18

Course title: Nutrition

Credits: 2

Course of coordinator: Dr. Tavakoli

Professor	Topics	Session / Date
Dr. Vafa	Introducing the importance of nutrition	1
Dr. Shabani	Human need for food biomolecules	2
Dr. Fallah	Biochemistry of nutrition-related diseases	3 4
Dr. Nourbakhsh	The relationship between hormones and nutrition	5 6
Dr. Vafa	Energy	7
Dr. Aryaeian	Food and resources (carbohydrates)	8
Dr. Vafa	Water soluble vitamins	9
Dr. Aryaeian	Fat-soluble vitamins	1 11
Dr. Jazaeri	minerals	12 13
Dr. Shabani	Scientific research in food and human nutrition	14 15