

NAME of the COURSE : Protein Methods

Course Code: ECTS Credits : 12

Semester : Fall

Undergraduate

Required

Hours : 8, Lectures : 2 Laboratory works: 6

Language of the Course : English

Contact: Assoc. Prof. Dr. Nazlı Arda

Aims and Objectives :

The course aims to help students learn to basic protein methods and improvement of solving chemical problems and using different methods.

Course Contents :

- Protein isolation from biological sources
- Protein concentration determination
- Concentrating protein solutions
- Polyacrylamide gel electrophoresis (PAGE)
- PAGE under denaturing conditions
- Molecular weight determination
- PAGE under nondenaturing conditions
- Enzyme activity determination on gels
- 1D- and 2D-PAGE
- Protein staining procedures
- Protein quantitation (densitometry)
- Protein elution from gels
- Immunoblotting

Assessment Methods :

40 % midterm, 50 % final exam, 10 % assignment

Prerequisite / Recommended :

Text Book / Recommended Reading :

NAME of the COURSE : Introduction to Biotechnology

Course Code:

ECTS Credits : 8

Semester : Fall

Undergraduate

Required

Hours : 2, **Lectures :** 2

Language of the Course : English

Contact: Prof. Dr. Şule Arı and Prof. Dr. Ayşegül Topal Sarıkaya

Aims and Objectives :

This course aims to help to the students to understand the concept of biotechnology.

Course Contents :

- The biotechnology industry
- Examples of biotechnological innovation
- Introduction to microbial plant and animal biotechnology
- Harnessing natural resources
- Health-related biotechnology
- Cultural, ethical and political issues

Assessment Methods :

40 % midterm, 50 % final exam, 10 % assignment

Prerequisite / Recommended :

Text Book / Recommended Reading :

NAME of the COURSE : Plant Tissue Culture

Course Code:

ECTS Credits : 12

Semester : Fall

Undergraduate

Required

Hours : 5, Lectures : 1 Laboratory works: 4

Language of the Course : English

Contact: Prof. Dr. Nermin Gözükırmızı

Aims and Objectives :

The course aims to help students learn to basic plant tissue culture concepts, to establish tissue culture systems for plant improvement studies, and to understand totipotency and to direct plant genomes through genetic applications with relations and links between physiological and genetics potential of plants.

Course Contents :

- Introduction to history
- Laboratory organization and sterile conditions
- Media preparation
- Calli and suspension cultures
- Morphogenesis
- Micropropagation
- Somaclonal variation
- Genetic manipulation
- Secondary matobolite production
- Stem cells
- Cryopreservation and biotechnological applications

Assessment Methods :

40 % midterm, 50 % final exam, 10 % assignment

Prerequisite / Recommended :

Text Book / Recommended Reading :

NAME of the COURSE : Biomembranes

Course Code:

ECTS Credits : 8

Semester : Spring

Undergraduate

Required

Hours : 2, **Lectures :** 2

Language of the Course : English

Contact: Prof. Dr. Avni Kuru

Aims and Objectives :

The course aims to help students learn to various biomembrane structures.

Course Contents :

- Membrane structure (lipid blayer, membrane proteins)
- Transport across cell membranes (erythrocyte membrane and ion-transport protein, thermodynamics of transport, passive transport, faciliated transport and active transport)
- Bacterial membranes
- Membranes and some specific functions
- Membranes and evolution
- Aging and cancer
- Regulation and apoptosis
- Drug design and therapy

Assessment Methods :

40 % midterm, 50 % final exam, 10 % assignment

Prerequisite / Recommended :

Text Book / Recommended Reading :

NAME of the COURSE : Human Genetics

Course Code:

ECTS Credits : 12

Semester : Spring

Undergraduate

Required

Hours : 5, Lectures : 2 Laboratory works: 3

Language of the Course : English

Contact: Prof. Dr. Nermin Gözükırmızı

Aims and Objectives :

The course aims to help students learn to define basic genetics mechanisms in human inheritance to analyze inherited characteristics and diseases of human to understand genes, genomes, chromosomes and gene expression profiles with relations to phenotypic appearances, to use these knowledge for genetic research and counseling.

Course Contents :

- History
- Characteristic and human genetics
- Cytogenetics
- Chromosome analysis
- Chromosome abnormalities
- Formal genetics (Mendel Genetics)

Assessment Methods :

40 % midterm, 50 % final exam, 10 % assignment

Prerequisite / Recommended :

Text Book / Recommended Reading :

NAME of the COURSE : Introduction to Molecular Genetics

Course Code:

ECTS Credits : 12

Semester : Spring

Undergraduate

Required

Hours : 6, **Lectures :** 2 **Laboratory works:** 4

Language of the Course : English

Contact: Assit. of Prof. Dr. Ercan Arican

Aims and Objectives :

Description of the genes and their roles in central dogma and post-genomic genetics.

Course Contents :

- Why genetics is important?
- What is a gene?
- How genes work?
- Transcription
- Translation
- Post-genomic genetics (human genome project, HapMap project)

Assessment Methods :

40 % midterm, 50 % final exam, 10 % assignment

Prerequisite / Recommended :

Text Book / Recommended Reading :