

COURSE LIST

Institute of Natural and Applied Sciences

Field : Biology

Course Title	Code	ECTS Credit	COMU Credit	Lecturer
Neurophysiology	ULP-21-BY001	7.5	3	Prof. Dr. Bülent Gündüz
Effects Mechanisms of Hormones	ULP-21-BY002	7.5	2	Prof. Dr. Bülent Gündüz
Technics of Histological Preparation	ULP-21-BY003	7.5	3	Prof. Dr. Bülent Gündüz
Endocrine Research Techniques	ULP-21-BY004	7.5	3	Prof. Dr. Bülent Gündüz
Introduction to Electrophysiology	ULP-21-BY005	7.5	3	Prof. Dr. Bülent Gündüz
Environmental Animal Physiology	ULP-21-BY006	7.5	3	Prof. Dr. Bülent Gündüz
Chronobiology	ULP-21-BY007	7.5	2	Prof. Dr. Bülent Gündüz
The Control of Sexual System with Brain	ULP-21-BY008	7.5	2	Prof. Dr. Bülent Gündüz
History, Philosophy and Ethic of Science	ULP-21-BY009	7.5	3	Prof. Dr. Bülent Gündüz
Scientific Writing Techniques and Preparation of Publication in Biology	ULP-21-BY-010	7.5	3	Prof. Dr. Bülent Gündüz
Environmental Design and Statistics for Biology	ULP-21-BY011	7.5	3	Assist. Prof. Dr. Esra Koçum
Gene Cloning	ULP-21-BY012	7.5	3	Assoc. Prof. Dr. Cüneyt Akı
Experimental Phytoplankton Ecology	ULP-21-BY013	7.5	3	Assist. Prof. Dr. Esra Koçum
Biology of Cancer	ULP-21-BY014	7.5	2	Assoc. Prof. Dr. Cüneyt Akı
Gene Transfer Technics at Plants	ULP-21-BY015	7.5	3	Assoc. Prof. Dr. Cüneyt Akı

Marine Primary Productivity	ULP-21-BY016	7.5	3	Assist. Prof. Dr. Esra Koçum
Cytoplasmic Genetic Systems	ULP-21-BY017	7.5	3	Assoc. Prof. Dr. Cüneyt Akı
Plant Tissue and Cell Culture	ULP-21-BY018	7.5	4	Assoc. Prof. Dr. Cüneyt Akı
Mutagenicity Tests in Higher Plants	ULP-21-BY019	7.5	4	Assoc. Prof. Dr. Cüneyt Akı
Defence Systems in Plants	ULP-21-BY020	7.5	4	Assoc. Prof. Dr. Cüneyt Akı
Plant Biotechnology	ULP-21-BY021	7.5	2	Assoc. Prof. Dr. Cüneyt Akı
Regulation of Gene Expression	ULP-21-BY022	7.5	3	Assoc. Prof. Dr. Cüneyt Akı
Signal Receptor Systems in Plants	ULP-21-BY023	7.5	3	Assoc. Prof. Dr. Cüneyt Akı
Mechanism of Cell Signal Transduction	ULP-21-BY024	7.5	3	Assist. Prof. Dr. Neslihan Demir
Epigenetic	ULP-21-BY026	10	3	Assoc. Prof. Dr. Kemal M. Taskın
Plant Molecular Biology and Biotechnology	ULP-21-BY027	7.5	3	Assoc. Prof. Dr. Kemal M. Taskın
Taxonomy of Freshwater Fishes in Turkey	ULP-21-BY028	8	3	Assoc. Prof. Dr. Şükran Yalçın Özdilek
Methods in Stream Ecology	ULP-21-BY029	10	3	Assoc. Prof. Dr. Şükran Yalçın Özdilek
Biology and Ecology of Sea Turtle	ULP-21-BY030	10	3	Assoc. Prof. Dr. Şükran Yalçın Özdilek
Ichthyology	ULP-21-BY031	6	3	Assoc. Prof. Dr. Şükran Yalçın Özdilek
Tropic Relationships and Applications in Stream Ecology	ULP-21-BY032	10	3	Assoc. Prof. Dr. Şükran Yalçın Özdilek
Research Techniques for Conservation of Sea Turtles	ULP-21-BY033	5	3	Assoc. Prof. Dr. Şükran Yalçın Özdilek
Invasive Ecology	ULP-21-BY034	7	3	Assoc. Prof. Dr. Şükran Yalçın Özdilek
Molecular Systematic of Fungi	ULP-21-BY035	7.5	3	Assist. Prof. Dr. Tülay Turgut Genç
Prokaryotic Genetics and Gene Expression	ULP-21-BY036	7.5	3	Assist. Prof. Dr. Tülay Turgut Genç
Biochemistry of	ULP-21-	7.5	3	Assist. Prof. Dr. Tülay Turgut

Nucleic Acids	BY037			Genç
Eukaryotic Transcription and Regulation	ULP-21-BY038	7.5	3	Assist. Prof. Dr. Tülay Turgut Genç
Protein Biochemistry	ULP-21-BY039	7.5	3	Assist. Prof. Dr. Tülay Turgut Genç
Eukaryotic Genetics	ULP-21-BY040	7.5	3	Assist. Prof. Dr. Tülay Turgut Genç
Advanced Biochemistry	ULP-21-BY041	7.5	3	Assist. Prof. Dr. Tülay Turgut Genç
Yeast Genetics	ULP-21-BY042	7.5	3	Assist. Prof. Dr. Tülay Turgut Genç
Advanced Enzyme Kinetics	ULP-21-BY043	7.5	3	Assist. Prof. Dr. Tülay Turgut Genç
Cell Cycle Regulation	ULP-21-BY044	7.5	3	Assist. Prof. Dr. Tülay Turgut Genç
Genotoxicology	ULP-21-BY045	7.5	3	Assist. Prof. Dr. Neslihan Demir
Molecular Cell Biology	ULP-21-BY046	7.5	3	Assist. Prof. Dr. Neslihan Demir
Aquatic Toxicology	ULP-21-BY047	7.5	3	Assist. Prof. Dr. Neslihan Demir
Cell Physiology	ULP-21-BY048	7.5	3	Assist. Prof. Dr. Neslihan Demir
Algal Cultures and Phytoplankton Ecology	ULP-21-BY049	7,5	3	Assist. Prof. Dr. Neslihan Demir
Global Environmental Issues	ULP-21-BY050	7,5	3	Asst. Prof. Dr. Esra KOÇUM
Fish Ecology	ULP-21-BY051	6	3	Assoc. Prof. Dr. Şükran YALÇIN OZDILEK
Marine Microbial Ecology	ULP-21-BY052	7,5	3	Assist. Prof. Dr. Esra Koçum
Oxidants and Antioxidants	ULP-21-BY053	7,5	3	Prof. Dr. Bülent Gündüz
Neuroendocrinology	ULP-21-BY054	7,5	3	Prof. Dr. Bülent Gündüz
Hormones, Behaviours and Obesity	ULP-21-BY055	7,5	3	Prof. Dr. Bülent Gündüz
Developmental Endocrinology	ULP-21-BY056	7,5	3	Prof. Dr. Bülent Gündüz

Course Code	ULP-21-BY001
Name of the Course in English	Neurophysiology
Name of the Course in Turkish	Nörofizyoloji

Language of the Course	English
Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	This course is intended as a guide to significant points in neurophysiology for those who have completed a course in the subject of physiology. It is also useful as a “map” for those who intend to embark on a study of the nervous system. Some selected topics: membrane properties, nerve impulse, synapses, effectors.

Course Code	ULP-21-BY002
Name of the Course in English	Effects Mechanism of Hormones
Name of the Course in Turkish	Hormonların Etki Mekanizmaları
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	2
Description	Biochemical basis of hormone reaction mechanisms. Hormone-receptor interactions. Role of second messenger in hormone action. Comparative analysis of action mechanisms of peptide and non-peptide hormones.

Course Code	ULP-21-BY003
Name of the Course in English	Techniques of Histological Preparation
Name of the Course in Turkish	Histolojik Preparasyon Teknikleri
Language of the Course	English
Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	Preparation of tissues for microscopic examination, fixation, fixatives, and fixatives for routine light microscopy, embedding, processes of embedding, using microtome for sectioning paraffin embedded tissues, preparation of slides, application different staining methods.

Course Code	ULP-21-BY004
Name of the Course in English	Endocrine Research Techniques
Name of the Course in Turkish	Endokrin Araştırma Teknikleri
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	This course covers the techniques applied in hormone research. Scientific background beyond the RIA and ELISA is given and student uses these techniques in the lab work.

Course Code	ULP-21-BY005
Name of the Course in English	Introduction to Electrophysiology
Name of the Course in Turkish	Elektrofizyolojiye Giriş
Language of the Course	English
Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	This lecture includes: The development of electrophysiology, Explanation of some basic terms in electrophysiology, Cellular recording, Recording from tissue, Recording at organism level, Collection of the signals, Amplification of the signals, Filtration of the signals, Analysis of the signals.

Course Code	ULP-21-BY006
Name of the Course in English	Environmental Animal Physiology
Name of the Course in Turkish	Çevresel Hayvan Fizyolojisi
Language of the Course	English
Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	The focus of this course is on the ways in which

	<p>the ubiquitous molecular structures of organisms are modified to permit organisms to thrive in such diverse environments as the polar regions, deserts, and the deep sea and to achieve modes of living that may involve major changes in type and quantity of nutrients available and in the oxygen that is present to support respiration. Some selected topics: biochemical adaptation, adaptation of enzymes to metabolic functions, mammalian developmental adaptations, temperature adaptations.</p>
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Course Code	ULP-21-BY007
Name of the Course in English	Chronobiology
Name of the Course in Turkish	Kronobiyoloji
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Prof. Dr. Bülent Gürbüz
ECTS Credit	7.5
COMU Credit	2
Description	Chronobiology is the study of biological rhythms in organisms. This course will address methods for the study and analysis of rhythmic phenomena in animals and in humans, with an emphasis on circadian rhythms (regular cycles of physiology, metabolism and behavior with a period of about 24 hours, which persist in the absence of environmental cues).

Course Code	ULP-21-BY008
Name of the Course in English	The Control of Sexual System with Brain
Name of the Course in Turkish	Üreme Sisteminin Beyin Tarafından Kontrolü
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	2
Description	Brain, pituitary and gonads make up a dynamic axis. Therefore, the reproductive activity is an expression of higher brain functions. In this class, students will learn how reproductive activities are

regulated and how they are modulated by various environmental changes.

Course Code	ULP-21-BY009
Name of the Course in English	History, Philosophy and Ethic of Science
Name of the Course in Turkish	Bilim Tarihi, Felsefesi ve Etiği
Language of the Course	English
Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course include; Historical development of science, scientists in different scientific disciplines and inventions, scientific theories, scientific behaviour, properties of science. Ethic rules, non-ethic behaviours, mission and responsibility of scientists.

Course Code	ULP-21-BY010
Name of the Course in English	Scientific Writing Techniques and Preparation of Publication in Biology
Name of the Course in Turkish	Biyolojide Bilimsel Yazım Teknikleri ve Yayın Hazırlığı
Language of the Course	English
Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered include; Definition and principles of scientific research, research planing, writing of manuscripts. Collecting and analysing of scientific data based on scientific principles.

Course Code	ULP-21-BY011
Name of the Course in English	Environmental Design and Statistics for Biology
Name of the Course in Turkish	Biyolojide Deneysel Tasarım ve İstatistik
Language of the Course	English
Level of the Course	Master
Lecturer	Assist. Prof. Dr. Esra Koçum

ECTS Credit	7.5
COMU Credit	3
Description	Basic ideas in experimental design and statistics as applied to biological research.

Course Code	ULP-21-BY012
Name of the Course in English	Gene Cloning
Name of the Course in Turkish	Gen Klonlaması
Language of the Course	English
Level of the Course	Master
Lecturer	Assoc Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course includes, Vectors and plasmids, DNA isolation plasmid purification, cloning, DNA and RNA labelling. Polymerase chain reaction, western blotting, southern blotting, northern blotting, gene expression, DNA sequencing, gene cloning in biotechnology.

Course Code	ULP-21-BY013
Name of the Course in English	Experimental Phytoplankton Ecology
Name of the Course in Turkish	Deneyisel Fitoplankton Ekolojisi
Language of the Course	English
Level of the Course	Master
Lecturer	Assist. Prof. Dr. Esra Koçum
ECTS Credit	7.5
COMU Credit	3
Description	This Msc course covers research and analytical methods used to study interactions between environmental factors such as light and nutrients and phytoplankton abundance and distribution and necessary theoretical back ground information for this.

Course Code	ULP-21-BY014
Name of the Course in English	Biology of Cancer
Name of the Course in Turkish	Kanser Biyolojisi
Language of the Course	English
Lecturer	Assoc. Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	2
Description	Topics to be covered in this course includes,

	principles of cancer biology, including cell cycle control points and cancer, relation between cell growth, cancer and oncogenes. How oncogenes cause cancer.
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Course Code	ULP-21-BY015
Name of the Course in English	Gene Transfer Techniques To Plants
Name of the Course in Turkish	Bitkilere Gen Transfer Teknikleri
Language of the Course	English
Lecturer	Assoc. Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course includes, preparations of gene transfer vectors in plant, direct gene transfer methods; electroporation and biolistic, indirect gene transfer methods; Gene transfer via Agrobacterium tumefaciens, Agrobacterium rhizogenes. DNA, RNA and protein analysis of transgenic plant and their generations. Advantages and disadvantages of transgenic plants.

Course Code	ULP-21-BY016
Name of the Course in English	Marine Primary Productivity
Name of the Course in Turkish	Denizel Birincil Üretim
Language of the Course	English
Level of of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Esra Koçum
ECTS Credit	7.5
COMU Credit	3
Description	This Ph D course covers the examination of measurement, regulation and distribution of primary production within various marine environments and the role of marine photosynthetic organisms in marine ecosystems marine productivity.

Course Code	ULP-21-BY017
Name of the Course in English	Cytoplasmic Genetic Systems
Name of the Course in Turkish	Sitoplazmik Genetik Sistemler

Language of the Course	English
Lecturer	Assoc. Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course includes, extrachromosomal hereditary material. Evolutionary importance of extrachromosomal hereditary material. Plasmids, organnel genomes, genes which encoded in organelles. Recombination in organnel DNA.

Course Code	ULP-21-BY018
Name of the Course in English	Plant Tissue and Cell Culture
Name of the Course in Turkish	Bitki Hücre ve Doku Kültürü
Language of the Course	English
Lecturer	Assoc. Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	4
Description	Topics to be covered in this course includes, tissue culture technics, preparation of growth medium, tissue elemintion, sterilization technics, tissue growing in culture medium. Basic knowledge about totipotensi, callogenesis and embriogenesis observing. Laboratory practice with economically important plant species for obtaining micropropagation.Preparation of subcultures, using plant growth regulators for callogenesis and embriogenesis, preparation of cell cultures.

Course Code	ULP-21-BY019
Name of the Course in English	Mutagenicity Tests in Higher Plants
Name of the Course in Turkish	Yüksek Bitkilerde Mutajenite Testleri
Language of the Course	English
Lecturer	Assoc. Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	4
Description	Topics to be covered in this course includes, history of higher plants which using in mutagenity test and their control. Growing plants and test methods. Micronucleus test in Tradescantia. Tradescantia-Stamen hair mutation test. Allium/Vicia root tip

micronucleus test. Allium/Vicia root tip (mitosis)
anaphase aberration test. Statistical methods.

Course Code	ULP-21-BY020
Name of the Course in English	Defence Systems in Plants
Name of the Course in Turkish	Bitkilerde Savunma Sistemleri
Language of the Course	English
Lecturer	Assoc. Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	4
Description	Topics to be covered in this course includes, determination of differences and presentation of mechanisms of different defense systems under biotic and abiotic systems in plants through natural and non natural ways signalling of defense systems, effects on synthesis sites, activity periods in plants and its life cycles and its environments. Explanation of relation between defence systems in plants with IPM (Integrated Pest Management). Application of activity mechanism in laboratories and field conditions via using of biotechnological and natural samples on signaling to plant defence systems. Assay of metabolic and molecular analyses in determination defence systems.

Course Code	ULP-21-BY021
Name of the Course in English	Plant Biotechnology
Name of the Course in Turkish	Bitki Biyoteknolojisi
Language of the Course	English
Lecturer	Assoc. Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	2
Description	Topics to be covered in this course includes, use of tissue culture technics in micro-propagation, to get disease resistant plant by tissue culture technics, somaclonal propagation in plant, tissue culture, gene transfer, explaining photosynthesis and plant pathogen interactions by tissue culture technics.

Course Code	ULP-21-BY022
Name of the Course in English	Regulation of Gene Expression
Name of the Course in Turkish	Gen Anlatımının Düzenlenmesi
Language of the Course	English
Lecturer	Assoc. Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course includes, general view of gene regulation. Role of protein which have duty in gene regulation in DNA binding. Transcriptional regulation. Molecular mechanism of production specific cell types. Posttranscriptional regulation. Genom regulations in gene expression control.

Course Code	ULP-21-BY023
Name of the Course in English	Signal Receptor Systems in Plants
Name of the Course in Turkish	Bitkilerde Sinyal Reseptör Sistemleri
Language of the Course	English
Lecturer	Assoc. Prof. Dr. Cüneyt Akı
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course includes, physical signals and their receptors, chemical signals and their receptors, receptors in cytosol, membrane binded receptors, qualitative and quantitative classification of receptors. Biological events which depending on a receptor.

Course Code	ULP-21-BY024
Name of the Course in English	Mechanism of Cell Signal Transduction
Name of the Course in Turkish	Hücre Sinyal İletim Mekanizmaları
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Neslihan Demir
ECTS Credit	7.5
COMU Credit	3
Description	Cell Signal transduction, signal transduction pathways, signal transduction mechanisms, local and long distance signaling, signal transduction receptors, G-protein linked receptors, tyrosine kinase receptors, ion channel receptors.

Course Code	ULP-21-BY026
Name of the Course in English	Epigenetic
Name of the Course in Turkish	Epigenetik
Language of the Course	English
Level of the Course	Master
Lecturer	Assoc. Prof. Dr. Kemal M. Taskın
ECTS Credit	10
COMU Credit	3
Description	Epigenetic is the regulation by which a gene's activity is modified through covalent modification to the DNA and histones or the structure of chromatin. These regulations are likely to have originated as a defence mechanism against transposon and virus DNAs. The expressions of many genes important for development are known to be control by epigenetically. Recently, genetic studies have identified the molecular basis for epigenetics.

Course Code	ULP-21-BY027
Name of the Course in English	Plant Molecular Biology and Biotechnology
Name of the Course in Turkish	Bitki Moleküler Biyolojisi ve Biyoteknoloji
Language of the Course	English
Level of the Course	Master
Lecturer	Assoc. Prof. Dr. Kemal M. Taskın
ECTS Credit	7.5
COMU Credit	3
Description	In this course, Plant Biotechnology and its applications and recent informations about Plant genoms and the gene expression control mechanisms in plants will be discussed.

Course Code	ULP-21-BY028
Name of the Course in English	Taxonomy of Freshwater Fishes in Turkey
Name of the Course in Turkish	Türkiye Tatl Su Balıkları Sistematığı
Language of the Course	Turkish – English
Lecturer	Assoc. Prof. Dr. Şükran Yalçın Özdilek
ECTS Credit	8
COMU Credit	3
Description	Introduction to freshwater fish of Turkey Collection, labeling and conserving of freshwater fish samples,

	<p>Morphological and anatomical characteristics of freshwater fishes</p> <p>Systematic characters</p> <p>Methods used in systematic</p> <p>Classification of freshwater fishes of Turkey</p> <p>Family characters I</p> <p>Family characters II</p> <p>Family characters III</p> <p>Family characters IV</p> <p>Family characters V</p> <p>Economic importance of freshwater fishes of Turkey</p> <p>Threaten factors for freshwater fishes</p> <p>Assessments</p>
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Course Code	ULP-21-BY029
Name of the Course in English	Methods in Stream Ecology
Name of the Course in Turkish	Akarsu Ekolojisinde Yöntemler
Language of the Course	Turkish – English
Lecturer	Assoc. Prof. Dr. Şükran Yalçın Özdilek
ECTS Credit	10
COMU Credit	3
Description	<p>Landscapes and Catchment Basins</p> <p>Discharge Measurements and Streamflow Analysis, dynamics of Flow</p> <p>Temperature, light, and oxygen</p> <p>Hyporheic Zones</p> <p>Suspended Sediment and Bedload</p> <p>Solute Dynamics</p> <p>Phosphorus Limitation, Uptake, and Turnover in Stream Algae</p> <p>Transport and storage of FPOM</p> <p>Transport and storage of CPOM</p> <p>Heterotrophic Microorganisms</p> <p>Benthic Stream Algae: Distribution and Structure</p> <p>Meiofauna</p> <p>Benthic Macroinvertebrates</p>

Macroinvertebrate Movements: Drift, Colonization, and Emergence
Fish Community Composition

Course Code	ULP-21-BY030
Name of the Course in English	Biology and Ecology of Sea Turtle
Name of the Course in Turkish	Deniz Kaplumbağalarının Biyolojisi ve Ekolojisi
Language of the Course	Turkish – English
Lecturer	Assoc. Prof. Dr. Şükran Yalçın Özdilek
ECTS Credit	10
COMU Credit	3
Description	General view of sea turtles, phylogeny and current status, reproduction and reproduction habitats, nest environment and embryonic development, migration, age, growth and population dynamics, foraging, feeding habitats and diets of sea turtles, diving physiology, thermal biology from nest to adults, osmoregulation, health problems and diseases, human impacts and conservation status research on sea turtles in Turkey Assessments

Course Code	ULP-21-BY031
Name of the Course in English	Ichthyology
Name of the Course in Turkish	İhtiyoloji
Language of the Course	Turkish – English
Lecturer	Assoc. Prof. Dr. Şükran Yalçın Özdilek
ECTS Credit	6
COMU Credit	3

Description	<p>Life in water,</p> <p>skeletal system, fish skeleton,</p> <p>muscles and movement,</p> <p>swimming, buoyancy and control, respiration,</p> <p>circulation,</p> <p>osmoregulation and ionic regulation,</p> <p>feeding and digestion,</p> <p>growth, reproduction, development,</p> <p>nervous and endocrine systems,</p> <p>thermoregulation,</p> <p>habitat selection,</p> <p>social behavior in fishes,</p> <p>overview of fish evolution,</p> <p>early fish, chondrichthyes, osteichthyes</p>
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Course Code	ULP-BY-032
Name of the Course in English	Trophic Relationships and Applications in Stream Ecology
Name of the Course in Turkish	Akarsu Ekolojisinde Trofik İlişkiler ve Uygulamalar
Language of the Course	Turkish – English
Lecturer	Assoc. Prof. Dr. Şükran Yalçın Özdilek
ECTS Credit	10
COMU Credit	3
Description	<p>Plant Herbivore Interactions</p> <p>Predator-prey interactions</p> <p>Trophic Relations of Macroinvertebrates</p> <p>Trophic Relations of Stream Fishes</p>

	<p>Habitat Use and Competition among Stream Fishes</p> <p>Stream Food Webs</p> <p>Primary productivity and community respiration</p> <p>Secondary Production of Macroinvertebrates</p> <p>Leaf breakdown in Stream Ecosystems</p> <p>Organic Matter Budgets</p> <p>Effects of Nutrient Enrichment on Periphyton</p> <p>Surface-Subsurface Interactions in Streams</p> <p>Macroinvertebrates as Biotic Indicators of Environmental Quality</p>
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Course Code	ULP-BY-033
Name of the Course in English	Research Techniques for Conversation of Sea Turtles
Name of the Course in Turkish	Deniz Kaplumbağalarının Korunmasında Araştırma Teknikleri
Language of the Course	Turkish – English
Lecturer	Assoc. Prof. Dr. Şükran Yalçın Özdilek
ECTS Credit	5
COMU Credit	3
Description	<p>Designing a conservation program</p> <p>Priorities for studies of reproduction and Nest Biology</p> <p>Priorities for research in Foraging Habitats</p> <p>Taxonomy, external morphology and species identification</p> <p>Habitat surveys</p> <p>Population surveys on nesting beaches</p> <p>Studies in Foraging Habitats</p> <p>Estimating population size</p> <p>Technics for measuring sea turtles</p> <p>Determining clutch size and hatching success</p> <p>Estimating hatcling sex ratios</p> <p>Diet sampling and diet component analysis</p>

	Measuring se turtle growth
	Assessments

Course Code	ULP-21-BY034
Name of the Course in English	Invasive Ecology
Name of the Course in Turkish	İstila Ekolojisi
Language of the Course	English
Level of the Course	Master
Lecturer	Assoc. Prof. Dr. Şükran Yalçın Özdilek
ECTS Credit	7,5
COMU Credit	3
Description	<p>Types of pollution and description of biological pollution</p> <p>General characteristics of invasive species</p> <p>Changes in the number of invasive species</p> <p>The spread of exotic species and ecological processes</p> <p>Modeling of the geographic distribution of invasive species</p> <p>The invasive species living in Turkey freshwaters, distribution and effects on ecosystem</p> <p>The invasive species living in Turkey freshwaters, distribution and effects on ecosystem</p> <p>The invasive species living in Turkey Sea, distribution and effects on ecosystem</p> <p>The invasive species living in Turkey Sea, distribution and effects on ecosystem</p> <p>The Biological and ecological characteristics of invasive fishes in Turkey</p> <p>The feeding behavior of invasive fishes and roles on the ecosystems in Turkey</p> <p>Factors that cause biological pollution in water</p> <p>Invasive species identification, risk assessment and management</p> <p>Assessment</p>

Course Code	ULP-21-BY035
Name of the Course in English	Molecular Systematic of Fungi
Name of the Course in Turkish	Fungal Moleküler Sistematiik
Language of the Course	English
Level of the Course	Master
Lecturer	Assist. Prof. Dr. Tülay Turgut Genç
ECTS Credit	7.5
COMU Credit	3
Description	This course covers the basic methods of fungal phylogenetic analysis and their application in fields such as systematics, comparative biology, and molecular evolution.

Course Code	ULP-21-BY036
Name of the Course in English	Prokaryotic Genetics and Gene Expression
Name of the Course in Turkish	Prokaryotik Genetik ve Gen Ekspresyonu
Language of the Course	English
Level of the Course	Master
Lecturer	Assist. Prof. Dr. Tülay Turgut Genç
ECTS Credit	7.5
COMU Credit	3
Description	To make students aware of the power of DNA technology. Basic concepts of Prokaryotic DNA manipulations will be taught and examples of how these manipulations can be used in medicine and industry will be given. To prepare students for more advanced course work in prokaryotic cell and molecular biology.

Course Code	ULP-21-BY037
Name of the Course in English	Biochemistry of Nucleic Acids
Name of the Course in Turkish	Nükleik Asit Biyokimyası
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Tülay Turgut Genç
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course include the chemistry and structure of DNA and RNA, from nucleotides to chromosomes, and some methods for studying, synthesizing, sequencing and manipulating nucleic acids.

Course Code	ULP-21-BY038
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Name of the Course in English	Eukaryotic Gene Transcription
Name of the Course in Turkish	Eukaryotik Gen Transkripsiyonu
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Tülay Turgut Genç
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course include the eukaryotic transcription machinery and gene regulation.

Course Code	ULP-21-BY039
Name of the Course in English	Protein Biochemistry
Name of the Course in Turkish	Protein Biyokimyası
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Tülay Turgut Genç
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course include the structures and functions of proteins, protein purification methods and techniques used in determining structure of proteins.

Course Code	ULP-21-BY040
Name of the Course in English	Eukaryotic Genetics
Name of the Course in Turkish	Eukaryotic Genetik
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Tülay Turgut Genç
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course include genom organizations and gene regulations in different eukaryotic organisms.

Course Code	ULP-21-BY041
Name of the Course in English	Advanced Cell Biochemistry
Name of the Course in Turkish	İleri Hücre Biyokimyası
Language of the Course	English
Level of the Course	Master
Lecturer	Assist. Prof. Dr. Tülay Turgut Genç

ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course include the metabolism of proteins, carbohydrates, lipids and nucleic acids; and also cell signaling mechanisms.

Course Code	ULP-21-BY042
Name of the Course in English	Yeast Genetics
Name of the Course in Turkish	Maya Genetiđi
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Tlay Turgut Gen
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course include structures, functions and genetics of different yeasts.

Course Code	ULP-21-BY043
Name of the Course in English	Advanced Enzyme Kinetics
Name of the Course in Turkish	İleri Enzim Kinetiđi
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Tlay Turgut Gen
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course include the chemical structure and functions of enzymes, regulation of enzyme activity, activators, inhibitors and kinetics of inhibitions, kinetics of one-substrate and multisubstrate enzymes.

Course Code	ULP-21-BY044
Name of the Course in English	Cell Cycle Regulation
Name of the Course in Turkish	Hcre Dngsnn Reglasyonu
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Tlay Turgut Gen
ECTS Credit	7.5
COMU Credit	3
Description	Topics to be covered in this course include cell cycle and its genetic control.

Course Code	ULP-21-BY045
Name of the Course in English	Genotoxicology
Name of the Course in Turkish	Genotoksikoloji
Language of the Course	English
Level of the Course	Master
Lecturer	Assist. Prof. Dr. Neslihan Demir
ECTS Credit	7.5
COMU Credit	3
Description	Genetic toxicology, mutations and relationship with cancer, chemical and physical mutagens, mechanisms of mutagens, mutagenicity tests

Course Code	ULP-21-BY046
Name of the Course in English	Molecular Cell Biology 1
Name of the Course in Turkish	Moleküler Hücre Biyolojisi 1
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Assist. Prof. Dr. Neslihan Demir
ECTS Credit	7.5
COMU Credit	3
Description	Introduction to molecular and cell biology, carbohydrates; protein structure and functions, lipids, nucleic acids, DNA and RNA, cell organelles, cellular organization, protein synthesis, Cell signal transduction mechanisms, Cell cycle, Cell division, DNA structure and replication, DNA transcription and translation, DNA mutation and repair, Rekombinant DNA technology, Cancer, Immunology

Course Code	ULP-21-BY047
Name of the Course in English	Advanced Cell Biology
Name of the Course in Turkish	İleri Hücre Biyolojisi
Language of the Course	English
Level of the Course	Master
Lecturer	Assist. Prof. Dr. Neslihan Demir
ECTS Credit	7.5
COMU Credit	3
Description	Introduction to aquatic toxicology, major classes of pollutants, routes by which pollutants enter the aquatic ecosystems, classification of aquatic pollutants, effects of pollutants to population, toxicity tests

Course Code	ULP-21-BY048
Name of the Course in English	Cell Physiology
Name of the Course in Turkish	Hücre Fizyolojisi
Language of the Course	English
Level of the Course	Master
Lecturer	Assist. Prof. Dr. Neslihan Demir
ECTS Credit	7.5
COMU Credit	3
Description	Physiology of the cell membrane, membrane and intracellular transportation of material exchange, cellular interaction, communication mechanisms, physiological functions of organelles, cell death.

Course Code	ULP-21-BY049
Name of the Course in English	Algal Cultures and Phytoplankton Ecology
Name of the Course in Turkish	Alg Kültürleri ve Fitoplanton Ekolojisi
Language of the Course	English
Level of the Course	Master
Lecturer	Asst. Prof. Dr.Esra KOÇUM
ECTS Credit	7.5
COMU Credit	3
Description	An in depth knowledge of theoretical background of algal culture issues and phytoplankton ecology
Course Code	ULP-21-BY050
Name of the Course in English	Global Environmental Issues
Name of the Course in Turkish	Küresel Çevre Sorunları
Language of the Course	English
Lecturer	Asst. Prof. Dr.Esra KOÇUM
ECTS Credit	7.5
COMU Credit	3
Description	This course is an interdisciplinary view of the environment as it is perceived in the beginning of twenty-first-century. It explores the interaction of science, technology, social institutions and attitudes, local behaviour and global consequences

Course Code	ULP-21-BY051
Name of the Course in English	Fish Ecology
Name of the Course in Turkish	Fish Ecology

Language of the Course	English
Lecturer	Assoc. Prof. Dr. Şükran YALÇIN OZDILEK
ECTS Credit	6
COMU Credit	3
Description	The main outlines of this course are Life in water, osmoregulation and ionic regulation, feeding and digestion, growth, reproduction, development, thermoregulation, habitat selection, social behaviour in fishes

Course Code	ULP-21-BY052
Name of the Course in English	Marine Microbial Ecology
Name of the Course in Turkish	Denizel Mikrobiyal Ekolojisi
Language of the Course	English
Level of the Course	Doctorate
Lecturer	Asst. Prof. Dr. Esra KOÇUM
ECTS Credit	7.5
COMU Credit	3
Description	This Ph D level course covers the diversity, ecology, and physiology of marine microorganisms, their role in marine microbial food webs and the biogeochemical cycling of elements, and the significance of microbial food webs for marine productivity

Course Code	ULP-21-BY053
Name of the Course in English	Oxidants and Antioxidants
Name of the Course in Turkish	Oksidanlar ve Antioksidanlar
Language of the Course	English
Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	The purpose of this lecture is to examine different aspects of

	reactive and induced oxidative stress. Its management and how reactive oxygen may affect the functional capacity of various vital organs tissues. Key related issues such as analytical methods, environmental factors, nutrition, aging, organ function and several pathophysiological processes will be addressed.
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Course Code	ULP-21-BY054
Name of the Course in English	Neuroendocrinology
Name of the Course in Turkish	Nöroendokrinoloji
Language of the Course	English
Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	In Neurophysiology, the organization and function of the nervous system will be explored. The first section will cover neurons, their mechanism of communication and how they are put together to build systems within the nervous system. The second section will explore in-depth sensory and motor systems. Brain and behavior will comprise the last section of the course. Disease states will be introduced, as appropriate, to strengthen conceptual understanding through examples of dysfunction.

Course Code	ULP-21-BY055
Name of the Course in English	Hormones, Behaviours and Obesity
Name of the Course in Turkish	Hormonlar, Davranış ve Obezite
Language of the Course	English
Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	This course describes how endocrine disorders can affect human behaviour and might cause obesity problems. Since the obesity is an increasing malfunctional disease, we will cover what parameters changes and how obesity affects human behaviour.

Course Code	ULP-21-BY056
Name of the Course in English	Developmental Endocrinology
Name of the Course in Turkish	Gelişim Endokrinolojisi
Language of the Course	English

Level of the Course	Master
Lecturer	Prof. Dr. Bülent Gündüz
ECTS Credit	7.5
COMU Credit	3
Description	<p>From the complex molecular control of endocrine cell differentiation of the amazing physiology of normal growth and puberty, development processes represent an integral and recurrent theme within the field of Endocrinology. The goal of the lecture is to incorporate the latest scientific information regarding the development of endocrine systems into a larger context in which molecular genetics is continued with understanding of endocrine physiology. Each lecture will be organized according to the chronologic development of the human/animal organism from the fetal/prenatal period.</p>