SOFIA UNIVERSITY ST. KLIMENT OHRIDSKI

COURSES IN FOREIGN LANGUAGES for ERASMUS INCOMING STUDENTS

2025/2026

Faculty of Biology

Faculty coordinator: Assist. Prof. Dr. Ralitsa Ilieva, ralitza_ilieva@biofac.uni-sofia.bg

Programme: B.Sc. in Biology BLB010116

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL E044	Basic Entomology	English	BS	Summer	3	30		15	Assoc. Prof. Albena Gjonova, PhD	gjonova@uni-sofia.bg

Short description of the course (in the language of instruction): This course provides a general introduction to insect biology and systematics. Topics covered include insect structure, development, life history and classification. The practical classes provide students with knowledge of the morphology, anatomy, immature stages and major orders of insects. Students will become familiar with basic external and internal structures and their functions, different types of insect development and basic insect ecology. They will learn how to prepare an insect collection and how to identify the orders of insects and some common species.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars Seminars	Practical work		
BL C093	Systematics of algae and fungi	English	BS	Winter	6	45		45	Prof. Maya P. Stoyneva, PhD, DrSc,	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This **compulsory course** is oriented towards students in Biology and Ecology (regular education). It provides data on the structure, reproduction, distribution and classification of algae and fungi (incl. lichenized fungi) as significant components of ecosystems and their position in the systems of organisms. The course is of theoretical-applied character and provides basic knowledge on the cytology, morphology, physiological, biochemical and genetic peculiarities, reproduction and life cycles, bases of ecology and distribution, evolution and phylogeny of the main taxonomic groups of algae and fungi and their role in Nature.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C185	Biostatistics	English	BS	winter	5	30		30	Assoc. Prof. Elena Tasheva, PhD Assist. Prof. Rumyana Kostova, PhD	elena.tasheva@biofac.uni-sofia.bg rkostova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The course aims to provide students with a fundamental understanding of the principles and methods used to present and analyse biological data. The course introduces students to descriptive statistics and the principles of hypothesis testing. The course also covers basic probability theory, focusing on probability distributions relevant to basic statistical analysis and problem solving in biology. Basic tests for differences applied to biological research are also included. The course also provides a basic understanding of the methods used to investigate the relationships between environmental factors and biological parameters, including correlation analyses and regression models.
Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL C093	Systematics of algae and fungi	English	BS	Winter	6	45		45	Prof. Maya P. Stoyneva, PhD, DrSc,	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This **compulsory course** is oriented towards students in Biology and Ecology (regular education). It provides data on the structure, reproduction, distribution and classification of algae and fungi (incl. lichenized fungi) as significant components of ecosystems and their position in the systems of organisms. The course is of theoretical-applied character and provides basic knowledge on the cytology, morphology, physiological, biochemical and genetic peculiarities, reproduction and life cycles, bases of ecology and distribution, evolution and phylogeny of the main taxonomic groups of algae and fungi and their role in Nature.
Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars/ Seminars**	**Practical work**		
BL F045	Lichenology	English	BS	Winter	2	30	15		Prof. Maya P. Stoyneva, PhD, DrSc	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This is a facultative course for students in regular education. It is with a theoretical-applied character. It shows the peculiar position of lichens in the organism world, the partner relations in this complex organism and possibilities for biosynthesis of lichen organisms. Data on the main anatomical and morphological organization of the lichen thalli, on the main types of reproduction and distribution, lichen classification and evolution are provided. When discussing the ecology and geographic distribution, their role as components of the ecosystem biodiversity is taken into account. Special attention is paid to the practical application of lichens, especially for bioindication, biomonitoring and lichenometry and to their use in perfumery and pharmaceutic industry. The main methods used in lichen taxonomy and in ecological-lichenological investigations, are explained.
Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars/ Seminars**	**Practical work**		
BL E186	Mycology	English	BS	Summer	3	30		15	Assoc. Prof. Blagoy Uzunov, PhD	buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is an **elective course for students** in regular education. The students will learn the most important representatives of the wild-growing fungi in Bulgaria, their edible, poisonous and threatened species and with measures for conservation of fungal resources.
Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		

BL E064	Medicinal algae and fungi	English	BS	Summer	3	30		15	Prof. Maya P. Stoyneva, PhD, DrSc	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This is an **elective course for students** in regular education. It provides knowledge on the main types of algal products and biologically-active compounds produced by cyanoprokaryotes and other eukaryotic algae, as well as on fungal toxins and secondary lichen metabolites. Additionally, data on the application of algae, fungi and lichens in both traditional and modern medicine and pharmacy and related with them food, cosmetic and perfumery industry are provided, together with the main possibilities and trends in the cultivation of the most important algae and fungi.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL E397	Aquaculture	English	BS	Winter	3	30		15	Prof. Dr. Eliza Uzunova	euzunova@uni-sofia.bg

Short description of the course (in the language of instruction): The course introduces the basic concepts and principles underlying the processes of cultivation of marine and freshwater organisms. It tracks the historical development of aquaculture - from its origins in ancient China to the present day. Students are acquainted with up-to-date statistics on world trends in aquaculture development, focusing on the main species in this sector - salmonid and cyprinid fishes. The course gives also a brief overview of the main groups of organisms that are cultivated in aquatic ecosystems - fish, algae, molluscs and crustaceans. The potential impacts of aquaculture on the environment are addressed in the light of global warming and water scarcity. Students will have the opportunity to be acquainted with the work in a re-circulating aquaculture system (RAS) and small pond farm as well.

Requirements for enrolment: NO

	Course		**Course offered**	**Semester**	**ECTS**	**Workload (hours)**		

Course code	title (in English)	Language of instruction	to BA/BS, MA/MS, PhD	(winter/ summer)		Lectures	Seminars	Practical work	Lecturer/s's name	Lecturer/s's E-mail
BL C257	Fundamentals of biodiversity – part Microbial biodiversity	English	BS	Winter	5	30	15		Lectures and seminars: Assoc. Prof. Yovana Todorova, PhD	yovanatodorova@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The main objective of the course is to introduce the key issues of structural and metabolic biodiversity of microorganisms with emphasis of relationships of biodiversity with opportunities for assessment, rehabilitation, bioremediation and conservation of natural resources and processes.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E326	Water treatment bio-control and management	English	BS	Summer	3	30		15	*Lectures: Assoc. Prof. Yovana Todorova, PhD* *Practical work: Assist. Prof. Nora Dinova PhD*	yovanatodorova@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The course is aimed to introduce the basic biological, microbiological, hydrochemical methods and approaches for control and management of water treatment processes and technologies, natural water resources, self-purification processes. The specific target of course is verification and introduction of CCP (Critical Control Point) approach for water management and water treatment processes using biological indication.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E387	Biological oceanography	English	BA/BS	Winter	3	30		15	Assist. Prof. Desislava Rozdina, PhD	rozdina@uni-sofia.bg;

Short description of the course (in the language of instruction):

The students are introduced to the basics of the biological oceanography and to the general information about the World Ocean. The physical and chemical characteristics of the saltwater basins are considered as a basis for bio-productivity and zonation of the ongoing biological processes. The major marine communities and their interaction with the abiotic and biotic factors are considered in the context of the anthropogenic influence and the global climate changes. It is justified the need of sustainable utilization of the live marine resources (mainly fish) in the different regions of the World Ocean. Special attention is paid to the identical problems of the Black Sea ecosystem.

After completion of the course, the students will have knowledge about the status of the World Ocean and the anthropogenic influence (fishery, agriculture and forestry, energy, transport, industry) on its biological resources. Students will become familiar with methods for marine ecosystems research and for the management of biological resources under various anthropogenic pressures.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester	ECTS	Number of hours			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Exercises/Seminars	Practical work		
BLE256	Bioinvasions	English	BA/MS	Summer	3	30	-	15	Prof. Eliza Uzunova; Assoc. Prof. Rosen Tzonev; Dr. Ilija Gjonov	euzunova@uni-sofia.bg; rossentzonev@abv.bg; gjonov@cicadina.com

Short description of the course (in the language of instruction): The course Bioinvasions synthesizes current knowledge of the ecology and economics of biological invasions, providing an in-depth evaluation of the science and its implications for managing the causes and consequences of one of the most pressing environmental issues facing humanity today. The introduction of pests, predators, and competitors into many ecosystems has disrupted the benefits they provide to people, in many cases leading to the extirpation or even extinction of native species. This course includes: 1. Terminology and basic concepts for the invasive process; 2. The main drivers of bioinvasions - the growth of world trade, global transport and travel, habitat conversion and land-use intensification, and climate change; 3. Biology and ecology of the invasive species occurring in the terrestrial and aquatic ecosystems; 4. Consequences for ecosystem functioning human health and economic activity. 5. Legal framework related to invasive and alien species and 6. Measures to prevent and limit the invasion and spread of invasive species. In the coarse are discussed the options for improving assessment and management of invasive species risks, and especially needs for achieving the international cooperation.

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours) Lectures	Seminars	Practical work	Lecturer/s's name	Lecturer/s's E-mail
BL C205	Microbiology and virology	English	BS	Winter	5	30		30	Assoc. Prof. Dr. Michail Iliev	miliev1@biofac.uni-sofia.bg
				Summer	5	20		20	Assoc. Prof. Dr. Ventzislava Petrova	vpetrova@biofac.uni-sofia.bg
						10		10	Prof. Dr. Stoyan Shishkov	sshishkov@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The course aims to provide basic knowledge about prokaryotic microorganisms: structure and chemical composition of the cell; characteristics of energy and constructive metabolisms, genetic information transfer mechanisms, microbial systematics. Students are acquainted with the various prokaryotic forms. The main features of Archaea are also discussed. The distribution of microorganisms in the environment and their role in biogeochemical transformations in nature is presented. The interrelations between micro- and macro-organisms are also revealed. The course provides basic information about viruses - their classification, replication strategy and clinical manifestations. Labs will give understanding how are handled most live models used in virology and standards for work with pathogens in laboratory environment.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E033	Plant Cytohistology	English	BS	winter	3	30		15	Assoc. Prof. Miroslava Stefanova, PhD	m.stephanova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction):
The course provides a detailed explanation of cytological characteristics as a structural basis for the functional specialization of plant tissues. Emphasis is placed on the influence of heredity and environmental factors on the emergence and formation of plant tissues in ontogeny and phylogeny. Special attention is paid to microscopic (LM, TEM, SEM) and microchemical methods, their importance and relevant applications in understanding plant anatomy. Also, the role of cytological and histological methods in modern fundamental and applied botanical scientific research is discussed.

Requirements for enrollment: NO

Programme: B.Sc. in Biology BLB010216

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C083	Systematics of algae and fungi	English	BS	Winter	6	23		22	Prof. Maya P. Stoyneva, PhD, DrSc	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This **compulsory course** is oriented towards students in Biology (part-time training). It provides data on the structure, reproduction, distribution and classification of algae and fungi (incl. lichenized fungi) as significant components of ecosystems and their position in the systems of organisms. The course is of theoretical-applied character and provides basic knowledge on the cytology, morphology, physiological, biochemical and genetic peculiarities, reproduction and life cycles, bases of ecology and distribution, evolution and phylogeny of the main taxonomic groups of algae and fungi and their role in Nature.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E228	Mycology	English	BS	Summer	3	15		8	Assoc. Prof. Blagoy Uzunov, PhD	buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is an **elective course** for students in part-time education. The students will learn the most important representatives of the wild-growing fungi in Bulgaria, their edible, poisonous and threatened species and with measures for conservation of fungal resources.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Exercises/ Seminars	Practical work		
BL E106	Medicinal algae and fungi	English	BS	Summer	3	15		8	Prof. Maya P. Stoyneva, PhD, DrSc	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This is an elective course for students in part-time education. It provides knowledge on the main types of algal products and biologically-active compounds produced by cyanoprokaryotes and other eukaryotic algae, as well as on fungal toxins and secondary lichen metabolites. Additionally, data on the application of algae, fungi and lichens in both traditional and modern medicine and pharmacy and related with them food, cosmetic and perfumery industry are provided, together with the main possibilities and trends in the cultivation of the most important algae and fungi.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C021	Plant Anatomy and Morphology	English	BS	winter	9	30		30	Assoc. Prof. Miroslava Stefanova, PhD	m.stephanova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): Plant anatomy and morphology is a basic biological discipline that provides modern knowledge about the structure of seed plants and especially angiosperms (flowering) plants. The information is presented in four sections - cytology, histology, structure of vegetative organs and structure of generative organs and reproduction of flowering plants. The course examines the specific structural characteristics of plant cells, tissues, and organs in light of the functions they perform and the influence of heredity and external conditions on their emergence and formation in ontogeny and phylogeny.
Requirements for enrollment: NO

Programme: B.Sc. in Molecular Biology BLM020119

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C174	Biochemistry 1	English	BS	Summer	6	60		30	Assoc. Prof. Dr. Jordan Doumanov Assoc.Prof. Dr. Lyuben Zagorchev Assoc.Prof. Dr. Denitsa Teofanova	doumanov@biofac.uni-sofia.bg lzagorchev@biofac.uni-sofia.bg teofanova@biofac.uni-sofia.bg
BL C225	Biochemistry 2	English	BS	Winter	4	30		30	Assoc. Prof. Dr. Jordan Doumanov Assoc.Prof. Dr. Lyuben Zagorchev Assoc.Prof. Dr. Denitsa Teofanova	doumanov@biofac.uni-sofia.bg lzagorchev@biofac.uni-sofia.bg teofanova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): Biochemistry course comprises the structural, functional, bioenergetic, and informational aspects of biochemical processes. The relationship structure-function of major classes of biomolecules (proteins, carbohydrates, lipids and nucleic acids) is discussed with accent on central metabolic pathways, their organisation, energy transformation and regulation. The basic principles of expression and transfer of genetic information are explained through the processes of biosynthesis of DNA (replication), biosynthesis of RNA (transcription), and protein synthesis (translation) in prokaryotic and eukaryotic organisms. The use of biochemical approaches to deeply understand other fundamental (molecular biology, pharmacology, human physiology, genetics, etc.) and applied (drug design, clinical laboratory, etc.) biosciences is demonstrated with appropriate examples. The laboratory exercises illustrate and extend the lectures, creating the practical skills necessary for the future professional realization of students. This compulsory course is oriented towards students in Molecular Biology.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Exercises/ Seminars**	**Practical work**		
BL C337	Biocatalysis	English	BS	Winter	8	45	15	30	Prof. Dr. Svetla Petrova Assoc. Prof. Dr. Kirilka Mladenova	spetrova@biofac.uni-sofia.bg k_mladenova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The purpose of the course "Biocatalysis" is to integrate the knowledge of biochemistry, bioorganic chemistry and molecular biology in order to throw a light on the relationship between the enzyme protein /ribozyme (deoxiribozyme) structure, cofactors, kinetics, catalytic strategies and diversity of regulatory mechanisms. The lectures discuss the current concepts of the molecular mechanisms of enzyme-catalysed reactions in their cell and metabolic context as well as the possibilities to apply enzyme catalytic strategies for creating new biocatalytic models and synthetic biocatalysators. Special attention will be paid to the multifunctional enzymes, metalloenzymes, mechanoenzymes, pseudoenzymes, as well as the enzymes involved in cell signalling and transport across the membranes. Topics, as behaviour of certain enzymes in non-aqueous media, enzyme nanotechnologies and enzyme synthesis of important biological products and pharmaceuticals, will be discussed to demonstrate the advanced enzyme applications. This compulsory course is oriented towards students in Molecular Biology.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C368	Molecular immunology	English	BS	Summer	7	60		30	Assoc. Prof. Dr. Ivanka Tsacheva Assist. Prof. Dr. Ginka Cholakova	itsacheva@biofac.uni-sofia.bg ginka.cholakova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): This immunology course presents the organization of a functional immune system with its molecular mechanisms of innate and adaptive immunity. A comprehensive view of the development of T- and B-lymphocytes is presented altogether with the molecular mechanisms of generation of the huge diversity of their antigen receptors. The biochemical characteristics of humoral and cell immunity are discussed as well as antigen recognition by B-cell and T-cell receptors, antigen presentation to T lymphocytes, the major histocompatibility complex and its functions. The course contains a full description of the effector mechanisms of humoral and cell-mediated immune response. The laboratory practice complements the lectures with appropriate immunology techniques like immunoprecipitation, ELISA, immunoblotting, RIA, purification of immunoglobulins etc. This compulsory course is oriented towards students in Molecular Biology (regular education).

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C286	Molecular biology	English	BS	Summer	6	60		30	Assoc. Prof. Dr. Ivelin Panchev	ijpanchev@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The course in Molecular Biology discusses the processes of replication, transcription and translation in prokaryotes and eukaryotes with an accent on the recent knowledge on their regulation and differences. It also considers the molecular mechanisms of: nuclear transport; protein sorting; types of posttranslational modifications; cell-to-cell signalling and signal transduction; cell adhesion; program cell death. Practices introduce students to the basic methods for experimental work with DNA and proteins – PCR; DNA and 2D PAAGE electrophoresis; preparation of competent cells and transformation. This compulsory course is oriented towards students in Molecular Biology and Biology (regular education).
Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL C255	Human Physiology 1	English	BS	Winter	4	30		30	Lectures: Prof. Dr. Hristo Gagov Practicals: Assist. Prof. Dr. Iliana Sazdova	hgagov@uni-sofia.bg i.sazdova@biofac.uni-sofia.bg
BL C296	Human Physiology 2	English	BS	Summer	6	45		45	Lectures: Prof. Dr. Hristo Gagov Practicals: Assist. Prof. Dr. Iliana Sazdova	hgagov@uni-sofia.bg i.sazdova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): This course includes knowledge in the fields of nature and regulation of all basic physiological functions in human – resting membrane potential, generation and propagation of action potential, muscle contraction, synaptic transmission, processes in CNS and functions of its divisions, sensory systems, blood and body fluids physiology, circulation, breathing and respiration in the lungs and tissues, digestion, metabolism, thermoregulation, excretion, hormonal regulation. Special attention is paid on the cellular and molecular mechanisms of physiological processes and their pharmacology. The course aims to give knowledge on the basis of vital processes, as well as on their complex and cross-linked regulation and dynamic in humans. Basic knowledge in the fields of Human Anatomy, Cell Biology and Biochemistry will be helpful.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C041	Basics of algology and mycology	English	BS	Winter	4	15		30	Prof. Maya P. Stoyneva, PhD, DrSc	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This **compulsory course** is oriented towards students in Molecular Biology (regular education). Students receive information on the structure, reproduction and bases of the classification of algae and fungi (incl. lichenized fungi) relevant to their position in the organism world. The course is of theoretical-applied character and provides the necessary minimum of knowledge on the cytology, morphology, physiological, biochemical and genetic peculiarities, reproduction and life cycles, bases of ecology and distribution, evolution and phylogeny of the main taxonomic groups of algae and fungi. Special attention is paid to the application of the knowledge on the structural and functional peculiarities of algae and fungi as interesting and significant model subjects in science and industry. The knowledge provided is absolutely necessary in further courses, related with functional and physiological features of organisms and new molecular data, incl. modern phylogenetic cladograms.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E012	Medicinal algae and fungi	English	BS	Summer	3	30		15	Prof. Maya P. Stoyneva, PhD, DrSc	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This is an **elective course for students** in regular education. It provides knowledge on the main types of algal products and biologically-active compounds produced by cyanoprokaryotes and other eukaryotic algae, as well as on fungal toxins and secondary lichen metabolites. Additionally, data on the application of algae, fungi and lichens in both traditional and modern medicine and pharmacy and related with them food, cosmetic and perfumery industry are provided, together with the main possibilities and trends in the cultivation of the most important algae and fungi.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E093	Algae and fungi - model objects in molecular biology	English	BS	Winter	3	30		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): The course aims to introduce students to algae, fungi and lichens used as model objects of molecular biology. Details of the cytological and morphological structure of organisms from these groups and their physiological and biochemical features are presented, along with specific aspects of their life cycles and methods of reproduction, on which a number of modern studies are based. At the same time, the possibilities for practical use in human life of the specifics of these organisms studied in the course are indicated.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C204	Microbiology 1	English	BS	Summer	6	45		45	Assoc. Prof. Dr. Trayana Nedeva	nedeva@biofac.uni-sofia.bg
BL C245	Microbiology 2	English	BS	Winter	4	30		30	Assoc. Prof. Dr. Trayana Nedeva	nedeva@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): This is a theoretical discipline that aims to familiarize students with the current state of microbiology as a basic biological science. The specific features of microorganisms as biological objects, the structural and functional organization of prokaryotes, as well as the specific characteristics of eukaryotic microorganisms are revealed. The structural and functional organisation of the prokaryotic cell as well as the structural organization and functions of the genome, and the types of genetic information transfer mechanisms are discussed. The basic principles of energy and constructive metabolism of microorganisms are also under discussion. Substantial attention is paid to the distribution of microorganisms in the environment and their role in the biogeochemical transformations in the nature, the basic principles of microbial ecology and relationships between them and other living organisms. A systematic review of the major groups of microorganisms and their possible practical application is made as well. The structural and functional organisation of *Archaea* is also part of the course. Special attention is paid to the microorganisms-producers of biologically active substances and their use in various branches of industry and environment protection.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		

BL E256	Physiology and biochemistry of microorganisms	English	BS	Summer	3	30		15	Assoc. Prof. Dr. Trayana Nedeva	nedeva@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The course Physiology and biochemistry of microorganisms aims to upgrade the fundamental courses in Microbiology and Biochemistry, focusing on the diverse biochemical properties of microorganisms. The physiological-biochemical organization of the microbial cell, the bio-energetic aspects of fermentations, bacterial photosynthesis and microbiological oxidation, as well as mechanisms of biosynthesis and regulation of primary and secondary metabolites are discussed. The course complements and builds on the knowledge and skills, already acquired during the training in general microbiology and biochemistry and promotes the acquisition of new knowledge in the field of biochemical and bio-energetic characteristics of microorganisms. It helps as well in competence development regarding integrated approach to analysing the biology of microorganisms.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL E124	Geological microbiology	English	BS	Summer	3	30		15	Assoc. Prof. Dr. Michail Iliev	miliev1@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): Theoretical discipline devoted to bacteria connected with biogeochemical cycles of the elements in the nature. Different biogeochemical cycles of elements as well as the main characteristics of the bacteria involved are under discussion. Different types of the interactions between bacteria are also discussed. The possibilities for practical application of metabolic activities of the microorganisms in environmental protection and bioremediation. The course complements and upgrades the skills acquired in other biological disciplines, which is a prerequisite for increasing students' general biological knowledge.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C031	Invertebrate Zoology	English	BS	winter	6	30	15	30	Assoc. Prof. Dr. Iliyan Iliev Assist. Prof. Dr. Ilia Gjonov	iliyan_lazarov@biofac.uni-sofia.bg gjonov@biofac.uni-sofia.bg

Short description of the course (in the language of instruction):
Invertebrate Zoology is one of the foundation courses that provide students with a general biological background. It examines the structural and functional characteristics of the major invertebrate groups. Comparative morphological, anatomical, physiological and ecological features are used to build knowledge of the different systematic groups of invertebrates and their biodiversity. Patterns in the evolutionary process and phylogenetic development are traced using classical and molecular evidence.

Requirements for enrollment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL **E307**	**Plant-Based Superfoods**	**English**	**BS**	**Winter**	**3**	**30**		**15**	**Assoc. Prof. Marieta Hristozkova PhD**	**hristozkova_m@uni-sofia.bg**

Short description of the course (in the language of instruction): The aim of the course is to introduce students to the plant-based "superfoods" – their important bioactive ingredients, potential of action and mechanisms of active oxygen species neutralization. The educational content will focus on the specifics of higher plants as "superfoods", due to their high antioxidant activity as a consequence of certain secondary metabolites concentration on the one hand, and the synergistic action of different types of bioactive substances. The course will also emphasize the possibility of modeling plant metabolism and increasing the antioxidant potential by natural biostimulants: mycorrhizal fungi, PGPB (plant growth-promoting bacteria) and other beneficial soil microorganisms. As a result, it will be presented how to evaluate a given "superfood", examining and comparing different physiological and biochemical parameters.

Requirements for enrollment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL **E277**	**Plant Productivity**	**English**	**BS**	**Winter**	**3**	**30**		**15**	**Assoc. Prof. Miroslava Zhiponova PhD**	**zhiponova@biofac.uni-sofia.bg**

Short description of the course (in the language of instruction): Different aspects of plant productivity are discussed with respect to increase and regulate yield and metabolic content. The course is maintained as an experimental project including theoretical preparation, experiments, analyses, and interpretation of the obtained results.

Requirements for enrollment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL **E 398**	**Phytoimmunity**	**English**	**BS**	**Summer**	**3**	**30**		**15**	**Assoc. Prof. Miroslava Zhiponova**	**zhiponova@biofac.uni-sofia.bg**

									PhD	

Short description of the course (in the language of instruction): Different aspects of plant defense are discussed with respect to plant survival and human health applications. The course is maintained as an experimental project including theoretical preparation, experiments, analyses, and interpretation of the obtained results.

Requirements for enrollment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL **E 176**	**In vitro cultivation of medicinal plants**	**English**	**BS**	**Summer**	**3**	**30**		**15**	**Assist. Prof. Desislava Mantovska, PhD**	**d_mantovska@biofac.uni-sofia.bg**

Short description of the course (in the language of instruction): The course is recommended for students with particular interest in the biotechnological aspects of plants. It provides theoretical knowledge of the fundamental principals of the plant growth in *in vitro* conditions as well as possible application if different in vitro plant cultures at industrial scales. The students will gain practical experience in establishing different plant tissue and cell cultures *in vitro* from various medicinal plants.

Requirements for enrollment: NO

Programme: B.Sc. in Biology and Chemistry BLH030117

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C092	Biodiversity of plants and fungi (part algae and fungi)	English	BS	Summer	2.5	15		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is **a ½ part of a compulsory course in botany (cryptogams, phanerogams and fungi)** for students in pedagogical disciplines related with biology (regular education). Students receive information on the main groups of algae, fungi and lichens and their role in Nature, and usage in human-affairs. The course provides the necessary minimum of knowledge on the structure, reproduction and bases of the classification of algae and fungi (incl. lichenized fungi) relevant to their position in the organism world. The course is of theoretical-applied character. The knowledge provided is absolutely necessary in further courses, related with functional and physiological features of organisms and their ecology and biodiversity. The course ensures not only achievement of fundamental, basic theoretical knowledge but also of competence in identification of field material.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		

BL C031	Zoology of invertebrates	English	BS	winter	5	30		30	Assoc. Prof. Albena Gjonova, PhD	gjonova@uni-sofia.bg

Short description of the course (in the language of instruction): The course focuses on the main types of invertebrates, exploring their morphological, anatomical, biological and ecological features. Students will acquire knowledge of the evolutionary trends and phylogenetic relationships between different groups of invertebrates. They will learn about morphofunctional adaptations according to environment and lifestyle. Practical skills are also developed, including the use of microscopic equipment, the preparation of temporary microscopic slides, the dissection of model species, and the making of schematic drawings of species or their parts. Students are introduced to the classification of multicellular invertebrates and learn to identify representatives of individual taxa. Special attention is given to some parasitic species of medical importance.

Requirements for enrollment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL C021	Plant Anatomy and Morphology	English	BS	winter	4	15		30	Assoc. Prof. Miroslava Stefanova, PhD	m.stephanova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction):
Plant anatomy and morphology is a basic biological discipline that provides modern knowledge about the structure of seed plants and especially angiosperms (flowering) plants. The information is presented in four sections - cytology, histology, structure of vegetative organs and structure of generative organs and reproduction of flowering plants. They examine the specific features of the structure of plant cells, tissues and organs. The relationship between structure and function are also discussed throughout the course.

Requirements for enrollment: NO

Programme: B.Sc. in Biotechnology BLT040117

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E044	Applied algology	English	BS	Summer	3	30		15	Prof. Maya P. Stoyneva, PhD, DrSc Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is an elective course for students in regular education. It has a theoretical-applied character. The main accents in the theoretical part are related with the most used algae and their metabolites in the practice of human affairs, incl. biotechnologies. Important part of the course is focused on algae and their products as food and medicinal sources, their role as energetic sources and use in modern biodiesel production, etc.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C257	Biotechnological methods in ecology	English	BS	Winter	4	45		30	*Lecturers:* Prof. Yana Topalova, PhD, DSc	ytopalova@uni-sofia.bg

									Assoc. Prof. Irina Schneider, PhD Assoc. Prof. Yovana Todorova, PhD *Practical work:* Assist. Prof. Nora Dinova, PhD	

Short description of the course (done in the language of instruction)

The main highlights of the course systematize the management approaches for the implementation of biotechnological methods to protect and restore the ecological balance in the nature. Built on a modular principle, the course includes: a/ introduction in specific area and terminology of environmental biotechnology; b/ basis of wastewater treatment processes and technologies; c/ bioremediation of polluted resources; d/ utilization of industrial, agricultural and household wastes by aerobic and anaerobic biotechnological processes; e/ biotech alternatives in agriculture and specific industries with a view to minimizing waste, use of new energy sources and future sustainable development; f/ specific control in environmental biotechnological processes.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL C195	Microbiology	English	BS	Winter	3.5	30		30	Assoc. Prof. Dr. Trayana Nedeva	nedeva@biofac.uni-sofia.bg

BL C195	Microbiology	English	BS	Summer	4.5	45		30	Assoc. Prof. Dr. Trayana Nedeva	nedeva@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): Theoretical discipline aimed to familiarize students with the current state of microbiology as a basic biological science. The specific features of microorganisms as biological objects, the structural and functional organization of prokaryotes as well as the typical characteristics of eukaryotic microorganisms are revealed. The basic principles of constructive and energy metabolism of microorganisms; the genome organization and the specific mechanisms of transfer of genetic material are discussed. Special emphasis is given to the microbial diversity and distribution in the environment and their role in biogeochemical cycles in nature. The course displays as well the basic principles of microbial ecology and microbial interaction with other living organisms. A systematic overview of the main groups of microorganisms and their basic practical application is foreseen. Information about microorganisms-producers of biologically active substances is given and their use in various industries and environmental protection is outlined. The course complements and upgrades the competence and skills gained during training in organic chemistry, biochemistry and genetics.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's e-mail**
						Lectures	**Seminars**	**Practical work**		
BL C235	Ecology and Environmental Protection	English	BS	Summer	5	45		15	Assoc. Prof. Ivan Traykov	itraykov@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): Ecology is a bio-science that studies the interaction between organisms and the environment in which they live, both biotic and abiotic. It analyses the structure, function and productivity of the supra-individual bio-systems - populations, communities and ecosystems. The course presents modern population ecology as an interesting and dynamic field. Central in the course is to give an understanding of the abiotic and biotic ecological mechanisms that determine the distribution and abundances of populations in nature. The course introduces central theories within population ecology which include the importance of abiotic factors, competition, predation, herbivory, dispersal, diseases and harvesting strategies for fluctuations in population sizes. The course also deals with community and ecosystem theories, including structure and temporal dynamics (succession) of ecological communities, community patterns of species richness and diversity, food webs and trophic interactions, data analysis methods. The second part of the course deals with environmental protection/management and sustainable development. Environmental management addresses hot topic issues such as global warming, pollution, deforestation, soil erosion, landfills, or depletion of Earth's natural resources. The topics will introduce students to the biological effects of air, soil and water pollution, and will explore methods for minimizing pollution effects and their negative impacts.
Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/ s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E034	Histology And Embryology	English	BS	Summer	3	30		15	Petar Eftimov	peftimov@uni-sofia.bg

Short description of the course (in the language of instruction): The "Histology and Embryology" course is designed for full-time undergraduate students in Biotechnology. The aim of the histological part of the course is to acquaint the students with the structural features, origin and functions of the tissues that make up animal organisms, as well as building the ability to recognize and analyse histological preparations. The embryology module of the course provides a basic understanding of the processes of formation of multicellular organisms, their early embryogenesis and the mechanisms underlying these processes.
Requirements for enrolment: YES **If any, please describe the specific requirements:** Students should have a basic knowledge of cell biology and biochemistry.

Programme: B.Sc. in Biotechnology BLT040217

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C042	Structure and biodiversity of plants and fungi (part algae and fungi)	English	BS	Summer	2.3	6		8	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg
Short description of the course (in the language of instruction): The course is **1/3 part of a complex botanical compulsory** course for students in Biotechnology (part-time education) and is oriented towards structure and biodiversity of algae and fungi. Data on their morphology and reproduction is provided with special attention on the application of the knowledge on structural and functional peculiarities of algae and fungi in biotechnologies.										
Requirements for enrolment: NO										

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Exercises/ Seminars	Practical work		
BL E045	Applied Algology	English	BS	Winter	3	15		8	Prof. Maya P. Stoyneva, PhD, DrSc,	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

									Assoc. Prof. Blagoy Uzunov, PhD	
Short description of the course (in the language of instruction): This is an elective course for students in regular education. It has a theoretical-applied character. The main accents in the theoretical part are related with the most used algae and their metabolites in the practice of human affairs, incl. biotechnologies. Important part of the course is focused on algae and their products as food and medicinal sources, their role as energetic sources and use in modern biodiesel production, etc.										
Requirements for enrolment: NO										

Programme: B.Sc. in Ecology and Environment Protection BLE050119

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL E216	Ecology of algae	English	BS	Summer	3	30		15	Prof. Maya P. Stoyneva, PhD, DrSc,	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This is an **elective course for students** in regular education. It provides knowledge on the influence of ecological factors on the development and distribution of the algae and on the main algal communities in different biotopes. Special attention is paid to the algal indicators for the state of recent water and land ecosystems and for paleo-reconstructions. Additionally, other aspects of applied algology are discussed (e.g., toxic algae). The main methods used in ecological-algological investigations are introduced.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL E064	Mycology	English	BS	Summer	3	30		15	Assoc. Prof. Blagoy Uzunov, PhD	buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is an **elective course** for students in regular education. The students will learn the most important representatives of the wild-growing fungi in Bulgaria, their edible, poisonous and threatened species and with measures for conservation of fungal resources.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E054	Medicinal algae and fungi	English	BS	Summer	3	30		15	Prof. Maya P. Stoyneva, PhD, DrSc	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This is a **elective course for students** in regular education. It provides knowledge on the main types of algal products and biologically-active compounds produced by cyanoprokaryotes and other eukaryotic algae, as well as on fungal toxins and secondary lichen metabolites. Additionally, data on the application of algae, fungi and lichens in both traditional and modern medicine and pharmacy and related with them food, cosmetic and perfumery industry are provided together with the main possibilities and trends in the cultivation of the most important algae and fungi.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E195	Basics of phytocoenoloical analysis	English	BS	Winter	3	30		15	Assist. Prof. Kalina Pachedjieva, PhD	kalina.pachedjieva@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): Phytocoenology is the study of the plant communities – their composition and structure, development and distribution as well as relationships with environment. The course is methodologically oriented combining knowledges from botany/floristics, plant ecology and statistics. In the frame of the course the methodologies for vegetation sampling and analyses are presented. Students get acquainted with the main stages of phytocoenological analysis for vegetation classification and its importance for identifying plant communities as basis of habitat types' categorization. Computer programs for analysis of vegetation and environmental data are used and material is presented through implementing case studies.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Exercises/ Seminars	Practical work		
BL C358	Waste Management	English	BS	Summer	5	30		30	Assoc. Prof. Dr. Silvena Boteva	sbboteva@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The course aims to introduce students to the growing worldwide problem of waste management, including all stages from collection, through temperate storage and transportation until the treatment (recovery and disposal) of waste. The course is consistent with the National Strategy for Waste Management and updated legislation for options of their treatment. It is focused on the basic concepts and principles of waste management and the hierarchy of the priorities of waste treatment. Each of the priorities is discussed in details as an opportunity for the recovery of waste, reducing the environmental risk of waste disposal, and the ability to use waste as secondary resources. It will discuss also a number of alternatives to the disposal technology for waste treatment. In the course, students will learn not only the most advanced options for waste treatment, but will become familiar with the ecological and economic impacts of the introduction of newer technologies and approaches for waste treatment. The students will be acquainted with national and European legislation relating to issues of collection, transport and treatment of solid waste.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's e-mail
						Lectures	Exercises/ Seminars	Practical work		
BL C307	Environmental impacts of water pollution	English	BS	Winter	5	30		30	Assoc. Prof. Ivan Traykov	itraykov@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The course provides an introduction to the basic concepts of water pollution and their effects on the water bodies. The course takes a broad approach. Students get acquainted with a wide range of topics, including specific categories

of pollutants, their sources, physical, chemical and biological transformations and impacts. An insight is given into the fundamentals of quality assessment, self-purification and the consequences of water pollutants such as inert substances, thermal pollution, nutrients, salts and oxygen demanding wastewaters, as well as the effects of hazardous pollutants: organochlorine compounds, metal ions, radionuclides and petroleum products. Attention is paid to the eutrophication and acidification of waters. It also focuses on the ways to avoid and / or reduce the impact of these pollutants on aquatic ecosystems. The course is intended for students in Ecology and EP studies.
Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C235	Ecology	English	BS	Winter	7	45		45	Assoc. Prof. Ivan Traykov	itraykov@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): Ecology is a bio-science that studies the interaction between organisms and the environment in which they live, both biotic and abiotic. It analyses the structure, function and productivity of the supra-individual bio-systems - populations, communities and ecosystems. The course presents modern population ecology as an interesting and dynamic field. Central in the course is to give an understanding of the abiotic and biotic ecological mechanisms that determine the distribution and abundances of populations in nature. The course introduces central theories within population ecology which include the importance of abiotic factors, competition, predation, herbivory, dispersal, diseases and harvesting strategies for fluctuations in population sizes. The course also deals with community and ecosystem theories, including structure and temporal dynamics (succession) of ecological communities, community patterns of species richness and diversity, food webs and trophic interactions, data analysis methods.
Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's e-mail
						Lectures	Exercises/ Seminars	Practical work		

BL C256	Environmental Protection	English	BS	Summer	4	30		30	Assoc. Prof. Ivan Traykov	itraykov@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): Environmental protection/management addresses hot topic issues such as global warming, pollution, deforestation, soil erosion, landfills, or depletion of Earth's natural resources. The topics will introduce students to the biological effects of air, soil and water pollution, and will explore methods for minimizing pollution effects and their negative impacts. Air pollution deals with the main chemical (greenhouse gases, ozone depleting gases, smoke forming gases and fine particular matter) and physical (noise, light and microwaves) pollutants and their effects on human, animal and plant health. Water pollution is also one the main environmental issues that we are facing. The course addresses some of its topics to elucidate: what causes water pollution, what are its effects, and what are the possible solutions to prevent water pollution? Soil erosion and soil pollution is the next problem of environmental management, which is discussed in the course. The health of soil is a primary concern to our community in terms of maintains high agriculture productivity and high natural biodiversity. And finally, the course focuses on the relationships between science, management and policy, while providing scientific understanding of environmental problems and their solving.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL E012	Ecological footprint	English	BS	Winter	3	30		15	Assoc. Prof. Dr. Silvena Boteva	sbboteva@biofac.uni-sofia.bg

Short description of the course (in the language of instruction):
The concept of the ecological footprint is a modern and increasingly used approach to assessing the impact of man on the environment. Students will get acquainted with the direct and indirect impact of various activities on the environment. The course focuses on the different types of fingerprints, the ways to calculate them and the measures to reduce the impact on the environment. The footprints (ecological, carbon and water) will be considered in detail depending on the consumed resources and the emitted emissions and depending on the branches (plant growing, animal breeding, industrial sectors, etc.). Students will also be introduced to the footprints left by various events, the activities of companies, as well as their individual footprint. In the practical classes, students will be able to calculate the various fingerprints, make comparisons and analyses of the data obtained.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C153	Soil science (fundamentals)	English	BS	Winter	5	30	-	30	Assoc. Prof. Dr. Silvena Boteva	sbboteva@biofac.uni-sofia.bg

Short description of the course (in the language of instruction):
The course aims to provide students with up-to-date knowledge of the main ecological and productive resource - soil. The main issues addressed in the lectures are related to the study of the soil genesis, composition and properties, fertility and agro-productive characteristics. Basic methods for the study of soil chemical, physical and mechanical properties are also covered. The course covers two main parts - general and special.
In the general part students acquire knowledge about weathering of rocks, soil formation, composition and properties of soil. The special part of the course covers topics such as soil classification, conditions of formation, morphological features, properties, fertility. Soil degradation (loss of organic matter, decline in soil fertility, and structural condition, wind and water erosion, salinization, acidification, soil compaction, soil sealing and pollution) is also discussed. Practical exercises are directly related to the topics covered in the lectures and address current issues and criteria for soil diagnosis and assessment used in practice.
The course will provide a basic understanding of the key concepts and terminologies of every aspect of soil.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E124	Aquaculture	English	BS	Winter	3	30		15	Assoc. Prof. Dr. Eliza Uzunova	euzunova@uni-sofia.bg

Short description of the course (in the language of instruction): The course introduces the basic concepts and principles underlying the processes of cultivation of marine and freshwater organisms. It tracks the historical development of aquaculture - from its origins in ancient China to the present day. Students are acquainted with up-to-date statistics on world trends in aquaculture development, focusing on the main species in this sector - salmonid and cyprinid fishes. The course gives also a brief overview of the main groups of organisms that are cultivated in aquatic ecosystems - fish, algae, molluscs and crustaceans. The potential impacts of aquaculture on the environment are addressed in the light of global warming and water scarcity. Students will have the opportunity to get acquainted with the work in a re-circulating aquaculture system (RAS) and small pond farm as well.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL E135	Ichthyology and Fish Conservation	English	BS	Summer	3	30		15	Lectures: Assoc. Prof. Dr. Eliza Uzunova; Practical work: Dr. D. Rozdina	euzunova@uni-sofia.bg

Short description of the course (in the language of instruction): Course is an integrated approach to fish biology from a physiological and ecological viewpoint. The course is built on a general background of fish diversity and environmental adaptations while discussing anatomy, physiology, ecology, behaviour. It also be reviewed the fundamentals of fish design and physiological adaptation to environment that contributes to remarkable success of fishes to survive and disperse. The course aims to increase familiarity with evolutionary history and taxonomic diversity of fishes. To improve understanding of the basic physiological and behavioural adaptations that fishes use to carry out their life cycle. To enhance student's skills at collecting and identifying local fish species. To expose to some of the issues surrounding the conservation of fish biodiversity in the environment. To introduce you to some of the quantitative techniques used in describing fish biology. Lectures will include slide and video shows of fishes from around the world and descriptions of what it is like to do field science. The lecture cycle will present and discuss examples of activities that have contributed to the conservation of fishes, carried out by both the state and non-governmental sectors. Laboratory exercises will include methods in fish anatomy, identification fish species, age determination. Field trips with aim local fish collection and also to the fish collection at the National Museum of Natural History will broaden the perspective of the course.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C225	Microbiology	English	BS	Winter	6	45		45	Assoc. Prof. Dr. Mihail Iliev	miliev1@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The course of Microbiology and microbiological methods for treatment covers the study of the morphological and structural organization of prokaryotes and specific features in their energy metabolism. It also provides basic knowledge about filamentous fungi and yeasts as objects of microbiology. The distribution of microorganisms in nature, the impact of environmental factors on their development, the interactions that occur between different microbial populations and among populations of microorganisms and other organisms is discussed. The role of microbes in the biogeochemical cycles in nature and their use in pollutants treatment and bioremediation of aquatic and terrestrial ecosystems is outlined.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C021	**Plant Anatomy and Morphology**	**English**	**BS**	**Winter**	**7**	**30**		**30**	**Assoc. Prof. Tsveta Ganeva, PhD** **Assoc. Prof. Miroslava Stefanova, PhD**	**tsvetaganeva@uni-sofia.bg** **m.stephanova@biofac.uni-sofia.bg**

Short description of the course (in the language of instruction): Plant anatomy and morphology is a basic biological discipline that provides modern knowledge about the structure of seed plants and especially angiosperms (flowering) plants. The course examines the specific structural characteristics of plant cells, tissues, and organs in light of the functions they perform and the influence of heredity on their emergence and formation in ontogeny. Special attention is paid on the perspective for understanding the influence mechanism between plant structure and development and ecological factors.

Requirements for enrollment: NO

Programme: B.Sc. in Ecology and Environment Protection BLE050219

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E248	Ecology of algae	English	BS	Summer	3	15		8	Prof. Maya P. Stoyneva, PhD, DrSc,	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This is a elective course for students in part-time education. It provides knowledge on the influence of ecological factors on the development and distribution of the algae and on the main algal communities in different biotopes. Special attention is paid to the algal indicators for the state of recent water and land ecosystems and for paleo-reconstructions. Additionally, other aspects of applied algology are discussed (e.g. toxic algae). The main methods used in ecological-algological investigations are introduced.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Number of hours			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E238	Mycology	English	BS	Summer	3	15		8	Assoc. Prof. Blagoy Uzunov, PhD	buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is an **elective course** for students in part-time education. The students will learn the most important representatives of the wild-growing fungi in Bulgaria, their edible, poisonous and threatened species and with measures for conservation of fungal resources.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours) Lectures	Seminars	Practical work	Lecturer/s's name	Lecturer/s's E-mail
BL E228	Medicinal algae and fungi	English	BS	Summer	3	15		8	Prof. Maya P. Stoyneva, PhD, DrSc	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This is an **elective course for students** in part-time education. It provides knowledge on the main types of algal products and biologically-active compounds produced by cyanoprokaryotes and other eukaryotic algae, as well as on fungal toxins and secondary lichen metabolites. Additionally, data on the application of algae, fungi and lichens in both traditional and modern medicine and pharmacy and related with them food, cosmetic and perfumery industry are provided, together with the main possibilities and trends in the cultivation of the most important algae and fungi.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester	ECTS	Number of hours			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Exercises/Seminars	Practical work		
BLE205	Bioinvasions	English	BA/MS	Summer	3	30	-	15	Prof. Eliza Uzunova; Assoc. Prof. Rosen Tzonev; Dr. Ilija Gjonov	euzunova@uni-sofia.bg; rossentzonev@abv.bg; gjonov@cicadina.com

Short description of the course (in the language of instruction): The course Bioinvasions synthesizes current knowledge of the ecology and economics of biological invasions, providing an in-depth evaluation of the science and its implications for managing the causes and consequences of one of the most pressing environmental issues facing humanity today. The introduction of pests, predators, and competitors into many ecosystems has disrupted the benefits they provide to people, in many cases leading to the extirpation or even extinction of native species. This course includes: 1. Terminology and basic concepts for the invasive process; 2. The main drivers of bioinvasions - the growth of world trade, global transport and travel, habitat conversion and land-use intensification, and climate change; 3. Biology and ecology of the invasive species occurring in the terrestrial and aquatic ecosystems; 4. Consequences for ecosystem functioning human health and economic activity. 5. Legal framework related to invasive and alien species and 6. Measures to prevent and limit the invasion and spread of invasive species. In the coarse are discussed the options for improving assessment and management of invasive species risks, and especially needs for achieving the international cooperation.

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C021	**Plant Anatomy and Morphology**	**English**	**BS**	**Winter**	**7**	**15**		**15**	**Assoc. Prof. Tsveta Ganeva, PhD**	**tsvetaganeva@uni-sofia.bg**

Short description of the course (in the language of instruction): Plant anatomy and morphology is a basic biological discipline that provides modern knowledge about the structure of seed plants and especially angiosperms (flowering) plants. The course examines the specific structural characteristics of plant cells, tissues, and organs in light of the functions they perform and the influence of heredity on their emergence and formation in ontogeny. Special attention is paid on the perspective for understanding the influence mechanism between plant structure and development and ecological factors.

Requirements for enrollment: NO

Programme: B.Sc. in Geography and Biology BLG060117

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C092	Biodiversity of plants and fungi (part algae and fungi)	English	BS	Summer	2.5	15		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is **a ½ part of a compulsory course in botany (cryptogams, phanerogams and fungi)** for students in pedagogical disciplines related with biology (regular education). Students receive information on the main groups of algae, fungi and lichens and their role in Nature, and usage in human-affairs The course provides the necessary minimum of knowledge on the structure, reproduction and bases of the classification of algae and fungi (incl. lichenized fungi) relevant to their position in the organism world. The course is of theoretical-applied character. The knowledge provided is absolutely necessary in further courses, related with functional and physiological features of organisms and their ecology and biodiversity. The course ensures not only achievement of fundamental, basic theoretical knowledge but also of competence in identification of field material.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		

BL C021	Plant Anatomy and Morphology	English	BS	winter	5	15		30	Assoc. Prof. Miroslava Stefanova, PhD	m.stephanova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction):
Plant anatomy and morphology is a basic biological discipline that provides modern knowledge about the structure of seed plants and especially angiosperms (flowering) plants. The information is presented in four sections - cytology, histology, structure of vegetative organs and structure of generative organs and reproduction of flowering plants. They examine the specific features of the structure of plant cells, tissues and organs. The relationship between structure and function are also discussed throughout the course.

Requirements for enrollment: NO

Programme: B.Sc. in Biomanagement and sustainable development BLU070119

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C154	Biodiversity of plants and fungi (part algae and fungi)	English	BS	Summer	3.5	15		30	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is **a ½ part of a compulsory course in botany (cryptogams, phanerogams and fungi)** for students in Biomanagement (regular education). Therefore, it provides data on the most important groups and structural peculiarities of the algal and fungal cells, vegetative bodies and reproductive structures in relation with the environmental factors. The accent is on the specific organisms, used in biomonitoring programs, on indicators of anthropogenic impact and conservation important species, used in environmental impact assessments.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E074	Applied Algology	English	BS	Summer	3	30		15	Prof. Maya P. Stoyneva, PhD, DrSc,	mstoyneva@uni-sofia.bg

									Assoc. Prof. Blagoy Uzunov, PhD	buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is a elective course for students in regular education. It has a theoretical-applied character. The main accents in the theoretical part are related with the most used algae and their metabolites in the practice of human affairs, incl. biotechnologies. Important part of the course is focused on algae and their products as food and medicinal sources, their role as energetic sources and use in modern biodiesel production, etc.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL C215	Ecology and environment protection	English	BS	Winter	6	45		45	Assoc. Prof. Dr. Silvena Boteva	sbboteva@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): Ecology is a bio-science that studies the interaction between organisms and the environment in which they live, both biotic and abiotic. It analyses the structure, function and productivity of the supra-individual biosystems - populations, communities and ecosystems. The course presents modern population ecology as an interesting and dynamic field. Central in the course is to give an understanding of the abiotic and biotic ecological mechanisms that determine the distribution and abundances of populations in nature. The course introduces central theories within population ecology which include the importance of abiotic factors, competition, predation, herbivory, dispersal, diseases and harvesting strategies for fluctuations in population sizes. The course also deals with community and ecosystem theories, including structure and temporal dynamics (succession) of ecological communities, community patterns of species richness and diversity, food webs and trophic interactions, data analysis methods. The second part of the course deals with environmental protection/management and sustainable development. Environmental management addresses hot topic issues such as global warming, pollution, deforestation, soil erosion, landfills, or depletion of Earth's natural resources. The topics will introduce students to the biological effects of air, soil and water pollution, and will explore methods for minimizing pollution effects and their negative impacts.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's e-mail
						Lectures	Exercises/ Seminars	Practical work		
BL E195	Basics of phytocoenoloical analysis	English	BS	Winter	3	30		15	Assist. Prof. Kalina Pachedjieva, PhD	kalina.pachedjieva@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): Phytocoenology is the study of the plant communities – their composition and structure, development and distribution as well as relationships with environment. The course is methodologically oriented combining knowledges from botany/floristics, plant ecology and statistics. In the frame of the course the methodologies for vegetation sampling and analyses are presented. Students get acquainted with the main stages of phytocoenological analysis for vegetation classification and its importance for identifying plant communities as basis of habitat types' categorization. Computer programs for analysis of vegetation and environmental data are used and material is presented through implementing case studies.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C317	Water resources management	English	BS	Winter	5	45		30	Assoc. Prof. Ivaylo Yotinov PhD	yotinov@uni-sofia.bg

Short description of the course (done in the language of instruction): This course provides the basic principles of management of waters as a strategic natural and economic resource. In consistent view, the main topics of course present the legislation base of management - regulations for the control of natural, drinking and waste waters, basic principles of self-purification and water treatment, organization and elements of state-regulated and scientific control of water quality.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E175	Biological oceanography	English	BA/BS	Winter	3	30		15	Lectures: Assist. Prof. Desislava Rozdina, PhD	rozdina@uni-sofia.bg

Short description of the course (in the language of instruction): The students are introduced to the basics of the biological oceanography and to the general information about the World Ocean. The physical and chemical characteristics of the saltwater basins are considered as a basis for bio-productivity and zonation of the ongoing biological processes. The major marine communities and their interaction with the abiotic and biotic factors are considered in the context of the anthropogenic influence and the global climate changes. It is justified the need of sustainable utilization of the live marine resources (mainly fish) in the different regions of the World Ocean. Special attention is paid to the identical problems of the Black Sea ecosystem. After completion of the course, the students will have knowledge about the status of the World Ocean and the anthropogenic influence (fishery, agriculture and forestry, energy, transport, industry) on its biological resources. Students will become familiar with methods for marine ecosystems research and for the management of biological resources under various anthropogenic pressures.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C235	Microbiology	English	BS	Winter	5	45		30	Assoc. Prof. Dr. Anna Tomova	aatomova@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The course of Microbiology provides knowledge on morphological, structural and functional organization of microorganisms. It offers an overview of microbial metabolism with special emphasis on energy transformation. Microbial growth and development, and the methods for their control through physical and chemical factors are discussed. The presented knowledge is focused on the relationship between microorganisms and other organisms; their distribution in natural environments and their role in the biogeochemical cycles of the main elements. The impact of microorganisms to the processes of contaminated soil and water treatment, and their role in the processing and spoilage of food products is given.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester	ECTS	Number of hours			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Exercises/ Seminars	Practical work		
BL E226	Microbiological monitoring of the environment	English	BS	Summer	3	30		15	Assos. Prof. Dr. Michail Iliev	miliev1@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The course "Microbiological monitoring of the environment" presents microorganisms in their natural habitats. It is focused on microbial diversity in different environmental habitats, microbial communities and relationships between them. The basic methodology concerns microbial quantification and study of metabolic activity. Information about the structure and qualitative composition of the microorganisms in aquatic ecosystems is given, and analysis of microbial communities in soil and extreme habitats is performed. The biogeochemical cycles of elements in nature and the role of microorganisms in the transformation of inorganic and organic matter is revealed. The prospects for application of microbial metabolic activity in bioremediation of pollutants of various types are discussed.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C031	**Plant Anatomy and Morphology**	**English**	**BS**	**Winter**	**6**	**30**		**30**	**Assoc. Prof. Tsveta Ganeva, PhD** **Assoc. Prof. Miroslava Stefanova, PhD**	**tsvetaganeva@uni-sofia.bg** **m.stephanova@biofac.uni-sofia.bg**

Short description of the course (in the language of instruction): Plant anatomy and morphology is a basic biological discipline that provides modern knowledge about the structure of seed plants and especially angiosperms (flowering) plants. The course examines the specific structural characteristics of plant cells, tissues, and organs in light of the functions they perform and the influence of heredity on their emergence and formation in ontogeny. Special attention is paid on the perspective for understanding the influence mechanism between plant structure and development and ecological factors.

Requirements for enrollment: NO

Programme: B.Sc. in Biology and English language BLA080121

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester	ECTS	Number of hours			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Exercises/ Seminars	Practical work		
BL C082	Biodiversity of plants and fungi (part algae and fungi)	English	BS	Summer	2	15		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is **a ½ part of a compulsory course in botany (cryptogams, phanerogams and fungi)** for students in pedagogical disciplines related with biology (regular education). Students receive information on the main groups of algae, fungi and lichens and their role in Nature, and usage in human-affairs. The course provides the necessary minimum of knowledge on the structure, reproduction and bases of the classification of algae and fungi (incl. lichenized fungi) relevant to their position in the organism world. The course is of theoretical-applied character. The knowledge provided is absolutely necessary in further courses, related with functional and physiological features of organisms and their ecology and biodiversity. The course ensures not only achievement of fundamental, basic theoretical knowledge but also of competence in identification of field material.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		

BL C031	Zoology of invertebrates	English	BS	winter	5	30		30	Assoc. Prof. Albena Gjonova, PhD	gjonova@uni-sofia.bg

Short description of the course (in the language of instruction): The course focuses on the main types of invertebrates, exploring their morphological, anatomical, biological and ecological features. Students will acquire knowledge of the evolutionary trends and phylogenetic relationships between different groups of invertebrates. They will learn about morphofunctional adaptations according to environment and lifestyle. Practical skills are also developed, including the use of microscopic equipment, the preparation of temporary microscopic slides, the dissection of model species, and the making of schematic drawings of species or their parts. Students are introduced to the classification of multicellular invertebrates and learn to identify representatives of individual taxa. Special attention is given to some parasitic species of medical importance.

Requirements for enrollment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL C021	Plant Anatomy and Morphology	English	BS	winter	4	15		30	Assoc. Prof. Miroslava Stefanova, PhD	m.stephanova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction):
Plant anatomy and morphology is a basic biological discipline that provides modern knowledge about the structure of seed plants and especially angiosperms (flowering) plants. The information is presented in four sections - cytology, histology, structure of vegetative organs and structure of generative organs and reproduction of flowering plants. They examine the specific features of the structure of plant cells, tissues and organs. The relationship between structure and function are also discussed throughout the course.

Requirements for enrollment: NO

Programme: B.Sc. in Agrobiotechnology BLR090123

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E013	Applied Algology	English	BS	Winter	3	30		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is a elective course for students in regular education. It has a theoretical-applied character. The main accents in the theoretical part are related with the most used algae and their metabolites in the practice of human affairs, incl. biotechnologies. Important part of the course is focused on algae and their products as food and medicinal sources, their role as energetic sources and use in modern biodiesel production, etc.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C134	General and Soil Microbiology	English	BS	Summer	9	45		45	Assoc. Prof. Dr. Ventsislava Petrova	vpetrova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The course is designed for students of bachelor degree program Agrobiotechnology. The program includes selected topics of general and soil microbiology. Subjects covered in the section "General Microbiology" are morphology, physiology, genetics of microorganisms and mechanisms of genetic transmission. The course introduces students to the fundamentals of modern microbiology. Allows for the acquisition of knowledge on the characteristics of the microorganism; structural and functional organization of microbial cell; processes of metabolism and practical application of metabolic abilities; characteristic of prokaryotic genome and the natural variability of induced bacteria and forms of genetic exchange. Specific part focuses on the distribution of microorganisms in the soil. Discusses all the main groups of microorganisms forming soil biota, as discussed in detail their involvement in nutrient cycles, energy flow and soil formation. The course includes a study of the environmental aspects of the biology of the soil: the specifics of soil as a habitat for microorganisms, micro and mezo zones, population ecology and vertical distribution of microorganisms in terrestrial ecosystems, role of soil microbiota for environmental protection. Particular attention is paid to the existing interactions between different organisms in the soil, as well as their application in bioindication of polluted soils.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C011	**Plant Anatomy and Morphology**	**English**	**BS**	**Winter**	**6**	**30**		**30**	**Assoc. Prof. Tsveta Ganeva, PhD**	**tsvetaganeva@uni-sofia.bg**

Short description of the course (in the language of instruction): The course will provide students with an understanding of the structure and development of the plant cells, tissues and organs, and the reproductive processes in vascular plants. More specifically, the course will focus on the structure and function of plant organs throughout their lifecycle, including embryogenesis, organ initiation, and the structures of leaves, roots, stems, and flowers in vascular plants. Upon completing the class, students will have gained an appreciation of the structure/function relationships of plant tissues and organs in regards to their development and physiological roles. Theoretical knowledge acquired in this course will provide students with a basis for upgrading the knowledge in the fields of plant physiology, plant cell and tissue propagation, plant pathology, plant breeding and seed production and plant environmental protection.

Requirements for enrollment: NO

Programme: M.Sc. in Botany (Higher Plants) BLB222119

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C083	Pre-Diploma Practicum	English	MS	Winter	15			90	Prof. Dr. Dolja Pavlova	pavlova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The basic aim of this course is to broaden the knowledge of students how to determine higher plants with specialized Bulgarian and foreign floristic literature. The students get familiar with representatives of plant species from mosses, pteridophytes, conifers, monocotyledonous and dicotyledonous families distributed on the territory of the country. Of particular importance is the information about the rare, endangered and endemic plants in the Bulgarian flora. During the course students get familiar with construction of the strictly (indented or bracketed) dichotomous keys.

Requirements for enrolment: YES
If YES, please describe the specific requirements: Basic knowledge of higher plant systematics, plant morphology and experience with floristic literature (field guides, floras) is required.

Programme: M.Sc. in Algology and mycology BLB 212115

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C011	Theoretical bases of the biodiversity and bioresources of algae and fungi in Bulgaria	English	MS	Winter	15	45		60	Prof. Nesho Chipev, PhD; Prof. Maya P. Stoyneva, PhD, DrSc	mstoyneva@uni-sofia.bg

Short description of the course (in the language of instruction): This **compulsory course** for both modules Algology and Mycology of the master program Algology and Mycology. Its aim of the course is to show to students the theoretical bases of one of the most actual topics in recent biology – the biodiversity and with the state and problems of bioresources of algae and fungi in Bulgaria. During the lectures, students get the idea for the general approaches for the understanding of the biodiversity, new concepts and hot spots in spatial and temporal aspects. In the part dedicated to the biodiversity of the algae and fungi in Bulgaria students get involved in the theoretical and practical problems related with the protection of the bioresources in Bulgaria, while during the exercises they will get knowledge on their real distribution in the country. Special attention is paid to the bioresource species in the main types of ecosystems and in protected natural areas.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		

BL C021	Basic algological and mycological methods	English	MS	Winter	15	45		60	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This **compulsory course** for both modules Algology and Mycology of the master program Algology and Mycology. Its aim is to demonstrate to the students the main field and cameral methods, the specific software products and statistical result processing, which are used in the recent algological and mycological studies. During the field exercises the specific methods for collection and fixation of algae and fungi from different recent ecological groups and from fossil material will be demonstrated. Special attention is paid to the methods for keeping of the living material and its cultivation in laboratory conditions. During the exercises in the laboratory students will achieve self-dependent practical experience in the preliminary processing of the collected samples for work in different algal groups (burning, drying-out, lightening, etc.), in the coloration techniques of various cytological structures for diagnostic purposes and in preparation of different slide types. They will learn to apply different methods for quantitative processing of the samples including different software products. Special attention will be paid to the methods for statistical processing and presentation of the achieved results.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL C042	Taxonomy and evolution of algae	English	MS	Summer	15	60		60	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This **compulsory course** in the module Algology of the master program Algology and Mycology. It is aimed to prepare specialists, which will work in the field of development of the recent lines in algological investigations, with the main taxonomical principles used in algology for prokaryotic and eukaryotic algae. During the lectures the development and recent lines in algological research, as well as with the main taxonomical principles applied in algology in relation to prokaryotic and eukaryotic algae. In details are shown data on the morphological, cytological and ecological peculiarities of each algal group and of modes of reproduction and life cycles, related with their phylogeny and identification problems. During the seminars the main lines in the evolution of algae and their role in different types of ecosystems. During the practical course students will work with main representatives of each algal group and a special attention will be paid on the self-dependent determination of taxa from different hierarchical levels.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL C062	Taxonomy and evolution of fungi	English	MS	Summer	15	60		60	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is a compulsory course in the module Mycology of the master program Algology and Mycology. Its aim is students to receive theoretical and practical knowledge in the field of mycology. The subject of the course are all groups of organisms, which traditionally have been accepted as a subject of the mycological science, namely myxomycetes and their close groups, fungi-like organisms and fungi**.** In the beginning of the course there is a historical overview of the mycological studies is made and the unique character of fungi is discussed together with their position in the organism world, which is delimited by their type of feeding and their main morphological and physiological features. The second part is concentrated on the morphology and life style of fungi: common trend with the other organisms; peculiarities in the body organization, feeding, life cycles, distribution and physiological activity. The third part is dedicated completely to the systematics: classification systems, taxonomically important features and taxonomical procedures, nomenclature. The origin and evolution of fungi are discussed. The fourth part has applicative character and is turned to the industrial importance of fungi.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C052	Phytoplanktonology and Phytobenthosology	English	MS	Summer	7	30		30	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is a compulsory course in the module Algology of the master program Algology and Mycology. Its aim is to demonstrate to the students the main terminology, concepts and theories about the state and development of the phytoplankton and phytobenthos, their relations and with specific contrivances and ecological peculiarities of the representatives of these groups, which are the life bases in the water ecosystems. During the lectures, seminars and practical courses special attention is paid to the most important representatives and to the peculiar methods for phytoplankton and phytobenthos studies (for collection of the material in the field and for cameral processing) and for processing of the results in the floristic, screening and monitoring investigations.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Number of hours			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E012	Algal cultures with bases of aquacultures	English	MS	Summer	4	30		15	Prof. Maya P. Stoyneva, PhD, DrSc,	mstoyneva@uni-sofia.bg

									Assoc. Prof. Blagoy Uzunov, PhD	buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is a elective course in the module Algology of the master program Algology and Mycology. The main aim of the course is to introduce the recent methods and criteria for evaluation of different ecosystem types and the most recent methods for their restoration and principles of their management. The basis of the course is the holistic approach with accent on the algal communities as the first level in the food-web chains, which earliest reacts to the changes in the ecosystems. During the exercises students will apply the received knowledge in a way that after a field trip, collecting of the necessary samples from elective sites they will prepare themselves assessments of some different types of ecosystems and will propose the most appropriate methods for their restoration and management.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL E052	Biology and systematics of soil and aerophilic algae	English	MS	Summer	4	30		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is a elective course in the module Algology of the master program Algology and Mycology. The aim of the course is to show to students the main terms, concepts and theories for the state and development of algae from the ecological group of the aerophyton, with the biological peculiarities of the aerophilic algae, their geographical distribution, as well as with their systematics and diagnostic features. In the course a special attention is paid to the specific methods for studying of algae of this peculiar ecological group (collection in the field, cultivation and cameral teaching) an application of the achieved results in floristic, screening and monitoring studies.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C072	Ecology of fungi	English	MS	Summer	4	30		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is a compulsory course in the module Mycology of the master program Algology and Mycology. The aim of the course is to represent to students the modern concepts about the place and role of fungi in the structural and functional organization of ecosystems. In the course theoretical and practical problems of mycology are included. During the practical exercises the details of the main research methods for studying of fungal ecology in forest and herbal ecosystems will be shown to students.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E112	Phytopathology (fungal pathogens)	English	MS	Summer	4	30		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is an elective course in the module Mycology of the master program Algology and Mycology. The aim of the course is to provide theoretical and practical knowledge on plant diseases of herbs and trees. The principles of pathological process, the causative disease agents and ecological preconditions for disease initiation and epiphytotic development, as well as plant immunology are discussed. Certain diseases are represented together with their geographical distribution, specific features, damages and methods for their limitation. During the exercises, skills for identification of the diseases, methods of investigation of pathogens and their identification and protective methods will be provided.
Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	Number of hours			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL E132	Applied lichenology	English	MS	Summer	4	30		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is an elective course in the module Mycology of the master program Algology and Mycology. The aim of the course is to represent the possibilities for lichen usage in medicine and different industries in historical and modern aspect, in bioconservation and monitoring studies in various natural territories. Special attention is paid to the biocorosion of cultural, historical and natural monuments caused by lichens and methods for their protection. The possibilities for artificial synthesis and cultivation of lichens are discussed. During the exercises students will receive knowledge how to apply in practice the modern lichenometric, lichenoidicative and restoration methods.
Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours) Lectures	Seminars	Practical work	Lecturer/s's name	Lecturer/s's E-mail
BL C022	Algological assessment, managing and restoration of ecosystems	English	MS	Summer	4	30		15	Prof. Maya P. Stoyneva, PhD, DrSc, Assoc. Prof. Blagoy Uzunov, PhD	mstoyneva@uni-sofia.bg buzunov@uni-sofia.bg

Short description of the course (in the language of instruction): This is an elective course in the module Algology of the master program Algology and Mycology. The main aim of the course is to introduce the recent methods and criteria for evaluation of different ecosystem types and the most recent methods for their restoration and principles of their management. The basis of the course is the holistic approach with accent on the algal communities as the first level in the food-web chains, which earliest reacts to the changes in the ecosystems. During the exercises students will apply the received knowledge in a way that after a field trip, collecting of the necessary samples from elective sites they will prepare themselves assessments of some different types of ecosystems and will propose the most appropriate methods for their restoration and management.

Requirements for enrolment: NO

Programme: M.Sc. in Applied hydrobiology and aquacultures BLB312121

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C011	Aquatic toxicology	English	MS	Winter	6	45		30	Assist. Prof. Desislava Rozdina, PhD	rozdina@uni-sofia.bg

Short description of the course (in the language of instruction): The course follows the contemporary tendencies in the aquatic toxicology. The students are introduced to the eco-toxicological assessment of the xenobiotic's impact on the biological components of the aquatic ecosystems, the study and diagnosis of the pollution of the water bodies with the main groups of toxicants. The course covers the following topics: the main pollution sources in the aquatic ecosystems; classification and characteristics of the polluted waters; contemporary methods for monitoring the behavior of the chemical components in the aquatic environment; the toxic effect of numerous organic and non-organic components in the water environment on the hydrobionts. The practical lessons include standard scheme of aquatic-toxicological experiment; acute toxicity testing of certain toxicants on hydrobionts; extraction of microplastic from different type of hydrobionts; observation of behavioral responses of aquatic organisms on different toxicants; pathoanatomical analysis of poisoned fish. Completing the course, the students will be able to apply the new competences as part of the biomonitoring and biological control of the aquatic ecosystems, solving cases associated with mass fish death with unknown chemical etiology.

Requirements for enrolment: NO

Programme: M.Sc. in Environmental biotechnology BLT212113

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C011	Environmental biotechnology	English	MS	Winter	9	45		45	*Lectures: Assoc. Prof. Irina Schneider, PhD* *Prof. Yana Topalova, PhD, DSc* *Practical work: Assist. Prof. Nora Dinova, PhD*	ytopalova@uni-sofia.bg

Short description of the course (done in the language of instruction): The main task of this course is to create an integrative view on the role of biotechnology for improvement of environmental quality. It ensures emphasizing knowledge about wastewater treatment processes and technologies, modulation of xenobiotic biodegradation and critical points in pollution control. The accent is put on the modern technologies suitable for different pollutants, the mechanisms of biodegradation of different types of xenobiotics (phenols, nitro- and chlorophenols, phtalates, polycyclic aromatic hydrocarbons), treatment of sludges.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E021	Drinking waters	English	MS	Winter	4	30		15	*Lectures and practical work*: Assoc. Prof. Yovana Todorova, PhD	yovanatodorova@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The course includes the specific area of drinking waters – sources, problems, technologies for obtaining of pure water for drinking and domestic needs, i.e. the way from reservoir to end user. The processing of raw water by appropriate methods for elimination of suspended substances, colouring compounds, metals and microorganisms is summarized. Some specific schemes for production of high-purified water as well as the problems of international standards and legislation are also considered in this elective course.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E052	Utilization of secondary products	English	MS	Summer	4	30		15	Assoc. Prof. Irina Schneider, PhD	i.schneider@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): This elective course has a task to give the students' knowledge on the qualitative and quantitative characteristics of secondary products from different biotechnological industries, on the possibilities and technological ways for their utilization through producing new useful products, either as sources or as consumption goods. Examples of industries that use raw materials like organic products, as well as examples of the use of biomass to energy production are summarized. The economic, ecological and social effect of this approach will be discussed. The main attention will be turn to utilization of secondary products from dairy industry, technologies of composting and anaerobic biotechnologies for biofuel production. Some original approaches will be regarded.

Requirements for enrolment: NO

Programme: M.Sc. in Microbiology and microbiological control BLM212119

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E011	Bioinformatics methods in microbiology	English	MS	Winter	4	30	15		Assoc. Prof. Dr. Ventzislava Petrova	vpetrova@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): This course is a general introduction to Bioinformatics, as a new direction in biological science. It focuses on available computer databases and the possibility of their use in decoding the biological information. Major projects in recent years related to sequencing of various genomic sequences. This led to intensive development of bioinformatics science. The disclosure of these genetic codes allows the acquisition of detailed understanding of the synthesis of proteins, as well as the mechanisms of regulation of all life processes. In this course students will be shown how the use of genetic sequences can lead to much more complete understanding of the biological processes, how the application of such a database would help pharmaceutical and biotech companies in the detection of target sites for new drugs or how to enhance the production efficiency of a given product. Students will be introduced to the basic concepts of Bioinformatics and computational biology tools, such as the most frequently used online tools and resources. The course will include the use of Entrez NCBI's, Blast, PSI-BLAST, ClustalW, Pfam, PRINTS, BLOCKS, Prosite and PDB. An introduction will be made on the possibilities of creating a database, and basic design principles of programming languages.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		

BL E051	GMOs in food and food products	English	MS	Winter	4	30		15	Assoc. Prof. Dr. Ventzislava Petrova; Assoc Prof. Dr. Anna Tomova	vpetrova@biofac.uni-sofia.bg aatomova@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): This course provides basic knowledge on the key features and applications of GMOs in modern agriculture and food industry, and their impact on public health. It is designed to create a better understanding of scientific and safety issues associated with the GMO. Different classifications of foods and food additives derived from GMO are presented, special attention is paid to the fundamental principles for assessing the safety of the GMOs in food. The risks to human health from the use of genetically modified foods are concerned and specific safety aspects of the GMO are discussed. The safety of different genetic markers used for selection, as well as the potential GMO interaction with the intestinal microflora and the immune response is appraised. Information is provided for the concept of the substantial equivalence of GMO. Different groups GMMs and the products derived and applied for human and animal consumption are described. European and international regulations dedicated on the use of genetically modified foods and aiming to protecting human health and the environment are considered.

Requirements for enrolment: NO

Course code	**Course title** (in English)	**Language of instruction**	**Course offered to BA/BS, MA/MS, PhD**	**Semester (winter/ summer)**	**ECTS**	**Workload (hours)**			**Lecturer/s's name**	**Lecturer/s's E-mail**
						Lectures	**Seminars**	**Practical work**		
BL C011	Metabolism of prokaryotes	English	MS	Winter	4	30		30	*Lectures*: Assoc. Prof. Dr. Trayana Nedeva *Practicals*: Assist Prof. Dr. Iliana Rasheva	nedeva@biofac.uni-sofia.bg i_rasheva @biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The course complements and deepens students' knowledge of physiology and biochemistry of prokaryotic microorganisms. It is built on the principle of adequacy of the prokaryotes' genetic diversity to their metabolic capacity. The teaching material consistently discusses the physiological-biochemical organization of the microbial cell in evolutionary aspect and the molecular phylogeny of microorganisms. The processes and mechanisms for generating cellular energy are considered: bacterial photosynthesis / photophosphorylation, fermentation / substrate phosphorylation and microbiological oxidation / oxidized phosphorylation. Special attention is paid to the energy of chemolithotrophic microorganisms. The course also covers basic aspects of anabolic processes in the microbial cell - the mechanisms of CO_2 fixation, biosynthesis of building blocks and macromolecules. The course also examines the phenomenon of biological N_2 fixation and its practical application. Students also become familiar with the basic principles of local and global regulation of metabolism in the microbial cell.
Requirements for enrolment: NO

Programme: M.Sc. in Quality and Safety of Food BLR222121

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E082	Alternative methods for diagnostic of food pathogens and contaminants	English	MS	Summer	4	30		30	Assist. Prof. Dr. Iliana Rasheva	i_rasheva@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The course is relevant for students from M.Sc. program Food Quality and Safety. The need for the food industry to rapidly assess the microbiological quality of raw materials and finished products and the microbiological status of manufacturing procedures, has led to the development and refinement of alternative microbiological methods of analysis that are quicker and/or easier to perform than the corresponding reference method. The course will help students to acquire new knowledge on how to apply alternative microbiological methods of food samples analysis. Students will acquire skills which they can apply in microbiology food control laboratories. The new knowledge and skills will expand the student competences in the area of general procedure to ensure the food safety and quality.

Requirements for enrolment: NO

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL E011	Good Manufacturing Practice (GMP) / Good Laboratory Practice (GLP)	English	MS	Winter	4	30		30	Assist. Prof. Dr. Iliana Rasheva	i_rasheva@biofac.uni-sofia.bg

Short description of the course (done in the language of instruction): The course is theoretical-applied and is intended for students from the M.Sc. program Food Quality and Safety. The subject of this discipline is the study of the system of rules that cover the minimum necessary conditions and activities to guarantee the quality of food - from production infrastructure, technical equipment, used materials and products, staff training, process management, control, and documentation. The main emphasis in the course provides for familiarization with the procedures and programs for good production practice and good laboratory practice, as well as their application in the production process and test laboratories. The content of the teaching material allows the acquisition of knowledge to organize the laboratory work, including rules for the planning, execution, recording, and documentation of laboratory analyses, according to the regulations in the country.
Requirements for enrolment: NO

Programme: M.Sc. in Cell biology and pathology BLB292117

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C041	Animal cell cultures	English	MA	Winter	4	15		30	Assoc. prof. V. Moskova-Doumanova	moskova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The course is mainly practically oriented and presents the basic principles of animal cell cultures, establishment of primary cell cultures, establishment of permanent cell lines, cultivation, manipulation and storage of different cell types. The lectures provide the theoretical basis, and the laboratory classes provide the practical skills for working with cell cultures. Students are trained to perform the basic manipulations with cell lines, to recognize and prevent the main types of contamination, and to follow the rules of sterile and safe work.

Requirements for enrolment: **NO**

Programme: M.Sc. in Developmental biology BLB292017

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
BL C041	Animal cell cultures	English	MA	Winter	4	15		30	Assoc. Prof. V. Moskova-Doumanova	moskova@biofac.uni-sofia.bg

Short description of the course (in the language of instruction): The course is mainly practically oriented and presents the basic principles of animal cell cultures, establishment of primary cell cultures, establishment of permanent cell lines, cultivation, manipulation and storage of different cell types. The lectures provide the theoretical basis, and the laboratory classes provide the practical skills for working with cell cultures. Students are trained to perform the basic manipulations with cell lines, to recognize and prevent the main types of contamination, and to follow the rules of sterile and safe work.

Requirements for enrolment: NO

Programme: M.Sc. in Pharmacy CHL382421

Course code	Course title (in English)	Language of instruction	Course offered to BA/BS, MA/MS, PhD	Semester (winter/ summer)	ECTS	Workload (hours)			Lecturer/ s's name	Lecturer/s's E-mail
						Lectures	Seminars	Practical work		
CH C025	Biology	English	MA	Winter	5	30		30	Assoc. prof. Georgi Georgiev	gn_georgiev@uni-sofia.bg

Short description of the course (in the language of instruction):
The main goal of the course "Biology" is to represent the essence and hierarchy of living matter on a morpho-physiological basis. The role of information-carrying molecules and their functioning as well as the synthesis of molecular complexes are discussed. The basic life processes, the processes of informational exchange and the flow of energy at the cellular, tissue, organism and supra-organism levels are pointed. Special attention is paid to the basic laws of inheritance of traits and basic laws and concepts in genetics. A summary review of human tissue organization is made. Students are acquainted with modern methods applicable in biomedical research and diagnosis.

Requirements for enrolment: NO

Legend: C- Compulsory course; E – Elective course; F – Facultative course