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| **COURSE** | **LECTURER** | **SEMESTER** | **LANGUAGE LEVEL** | **ECTS CREDITS** | **STUDY LEVEL** | **COURSE DESCRIPTION** |
| 1. Aquatic toxicology | Assist. Professor Vesela Yancheva | S | B2 | 3 | Bachelor | Ecological toxicology attempts to systematize and explain the way in which different toxic substances (inorganic, such as heavy metals and organic, such as pesticides, PAHs, PCBs, dioxins, etc.) interfere with biota, and also to evaluate the potential harmful effects which they represent to plants, animals and humans after a short-term (acute) or long-term (chronic) exposure. Ecological toxicology interacts with all other biological fields since it focuses on the way in which different pollutants affect the biological systems and processes. This particular course focuses mainly on contaminants in freshwater ecosystems and their impact on fish and mussels.Successful graduates of this course:1. will know:► different toxic substances, both natural and anthropogenic and how they impact the living organism. Upon completing the course students will also achieve an up-to-date knowledge of the most important areas of aquatic toxicology.2. will be able to:► do independent research, work and solve ecotoxicological problems, as well as strengthen their ability to apply what they have learned. |
| 2. Basic Bioinformatics | Assoc. Prof. Vesselin Baev | S | B2 | 7 | Bachelor | Bioinformatics combines Biology and Computer Science to develop methods and software tools to understand biological data.Scientists require the combined and integrated skills of biology and computer science to exploit bio-medical data for various applications.This course will give students the chance to develop basic skills in Bioinformatics.1. will know:►basic bioinformatics applications and methods►basic software tools for analysis2. will be able to:►work with bio-databases►analyze genomic data►work with genes and proteins |
| 3. Gene Expression Regulation | Prof. GalinaYahubyan;Assoc. Prof. Mariyana Gozmanova | S | B2 | 6 | Bachelor | The purpose of the Gene Expression Regulation course is to broaden and deepen students' knowledge of the strategies and mechanisms that organisms use to control gene expression. The course focuses mainly on elucidating regulatory processes in eukaryotic organisms, while also highlighting differences and similarities with prokaryotic organisms. Gene expression control is examined in detail at each of its stages: chromatin organization, transcription, processing, splicing, transport, and translation. The main focus of the course is on the regulation of gene expression at the stage of transcription initiation, when deciding whether a gene will be expressed. Particular attention is also paid to tissue-specific expression and related positional control of gene expression. |
| 4. Human and animal physiology | Assist. Professor Mladen Naydenov | S | B2 | 6 | Bachelor | Нuman and animal physiology studies how [organisms](https://en.wikipedia.org/wiki/Organism), [organ systems](https://en.wikipedia.org/wiki/Organ_system), individual [organs](https://en.wikipedia.org/wiki/Organ_%28anatomy%29), [cells](https://en.wikipedia.org/wiki/Cell_%28biology%29), and [biomolecules](https://en.wikipedia.org/wiki/Biomolecule) carry out the [chemical](https://en.wikipedia.org/wiki/Chemistry) and [physical](https://en.wikipedia.org/wiki/Physics) functions in a living system. Central to physiological functioning are biophysical and biochemical processes, [homeostatic](https://en.wikipedia.org/wiki/Homeostasis) control mechanisms, and [communication](https://en.wikipedia.org/wiki/Cell_signaling) between cells.The principal level of focus of physiology is at the level of organs and systems. The biological basis of the study of physiology integration refers to the overlap of many functions of the systems of the human body.In the course of human and animal physiology the students will be theoretically and practically taught in the following main units:* Muscular system - mechanism of excitation and contraction, types of contractions
* Cardiovascular system - blood, heart, cardiac output, blood flow, and blood pressure
* Nervous system -neurons, action potentials, mechanisms of regulation and reflex arc
* Respiratory, endocrine and sensory systems - functions and regulation
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| 5. General Ecology | Assoc. Prof. Dilian Georgiev, DSc | S | B2 | 7 | Bachelor | Ecology is the scientific study of interactions among organisms and their environment. It is an interdisciplinary field that includes mostly biology, chemistry, and geography. It includes the study of interactions that organisms have with each other, other organisms, and with abiotic components of their environment. Topics of interest include the diversity, distribution, biomass, and number of particular organisms, as well as cooperation and competition between organisms (biotic interactions), both within and among ecosystems. Ecosystem processes, such as primary production, nutrient cycling, and various niche construction activities, regulate the flux of energy and matter through an environment are also studied.The successful graduates of this course:will know:► The interactions that organisms have with each other, other organisms, and with abiotic components of their environment; Population structure and dynamics; The life processes, interactions, and adaptations; The movement of materials and energy through living communities; The successional development of ecosystems; The abundance and distribution of organisms and biodiversity in the context of the environment.will be able to:► Carry out some independent research and analyses, work and solve ecological problems, as well as strengthen their ability to apply what they have learned. |
| 6. English for biology students | Assistant Gergana Stankova | S | B2 | 6 | Bachelor, Master | The English language course for biology-students aims to develop and master students’ language skills, which will support their work with scientific materials (e.g. articles, manuscripts, etc.) and the use of specialized scientific literature in English. They will develop presentation and communicative competencies, as well as skills for learning grammar and vocabulary related to their general biology tuition. Students will practice using the language as a system, with appropriate English content-language materials for developing skills in reading, writing and speaking.After the successful completion of the course, students1. will know:► common grammatical units in English that can be mistaken and cause problems in using them►biological terms and basic vocabulary with a biological focus2. will be able to:►read and translate effortlessly scientific biological texts►deal with basic biological concepts in both written and spoken style►make it easier to use different sources of biological information in English. |
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