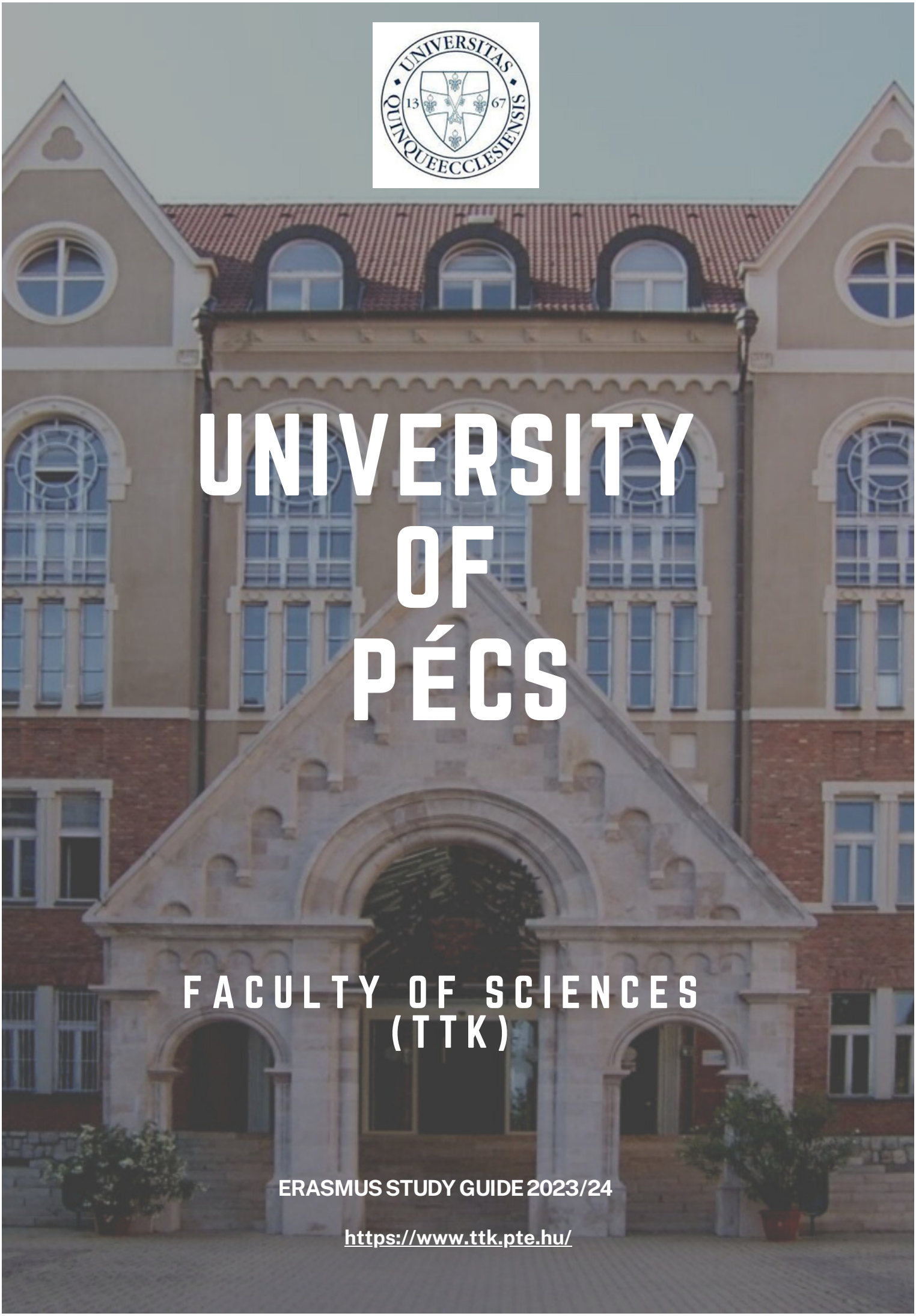

UNIVERSITY OF PÉCS

FACULTY OF SCIENCES (TTK)

ERASMUS STUDY GUIDE 2023/24

https://www.ttk.pte.hu/

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WELCOME NOTE

Dear Prospective Erasmus+ Student,

On behalf of the entire staff of the University of Pécs, let me congratulate you on your successful nomination to our university and I hope, this experience abroad will open numerous opportunities for you, as you anticipated.

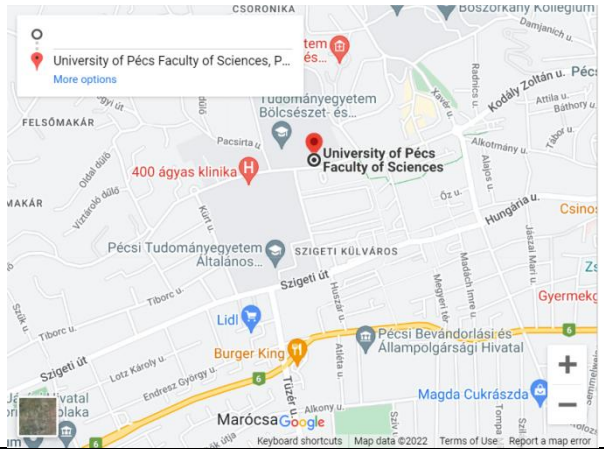
We, at the faculty of sciences strive hard to make sure that your decision to choose our university was the best one and your entire Erasmus+ experience was a joyful one. We assure you that your thirst for exclusive education will be quenched in our state of the art university.

This guide is a nugget of information for all our incoming Erasmus+ students. It contains all necessary information related to which subjects can you choose and from which institute. There are important notes and practical sum and substance on which things you should consider before you register yourself for the subjects. This will also walk you through all the important details which you will continually utilize during your semester abroad.

You can also find a gist about city life in Pécs in the last part of the guide so, you make sure that you see your stay with us as not only filled with heaps of assignments and semester tasks but, loads of recreational activities in a city brimming with culture. We do hope that you will end your mobility in these words: *"Yes, this semester abroad was a life-changing experience,indeed".*

Mariam Maqsood

CONTACT INFORMATION

Address	Faculty of Sciences(Természettudományi Kar-TTK) Hungary, Pécs, Ifjúság útja 6, 7624 To view location, click here. 
Faculty's Dean	Dr Attila Horváth
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INTRODUCTION TO THE FACULTY

The history of higher education in Pécs dates back to the fourteenth century when Louis the Great, initiated the establishment of a university in the 1367. As a result of an integration process of several stages, the University of Pécs was founded, which has become one of the most famous, prestigious institutions having a leading role in regional education in Europe. It has ten faculties which cover the full spectrum of high-quality higher education.

The Faculty of Sciences (TTK) comprises of six institutes who are involved in teaching and research for natural sciences (biology, chemistry, physics, geography and earth sciences), informatics, mathematics and sport sciences.

Our bachelor- level education (BSc) was launched in 2006, while master programs (MSc) started in 2009 belonging to these different fields.

The teaching and research staff of the faculty play an important role in the intellectual life of Southern Transdanubian region and contribute to the scientific development of the region. Their achievements in research are valued highly both in Hungary and in international circles. The high quality of research and teaching is also illustrated by the success achieved by students of the faculty at the National Students Scientific Conferences (OTDK and TDK)

The Faculty has its own library, computer centre, various laboratories belonging to different institutes and departments. With its conference hall, lecture auditoria, session rooms, central hall, spacious dining facility and modern technical background, the faculty is a perfect site for prestigious scientific events.

The Institute of Physical Education and Sport Sciences is responsible for the operation of the recreational activities and the management of sporting life at the university. The Sports Centre which includes the sports hall, gymnasium and modern swimming pool was opened in 1997. Together with this recreational centre, the outdoor facilities in the campus park and botanical garden provide an inspirational setting for the site solely dedicated to students and researches belonging to the field of science.

ERASMUS+ PROGRAMS

The foreign language (English) courses offered under the ERASMUS+ program are very popular among the exchange students. The Faculty of Sciences cooperates with numerous international universities through framework contract. With the help of these partnerships the number of incoming students from other European countries is reasonably high, and at the same time our students are also living with the possibilities of abroad scholarship. The extensive domestic and international relationships allow a high range of collaborations with several professional partners in order to develop joint education and research programs or the organized exchanges of guest lectures. The Faculty of Sciences has Erasmus+ bilateral agreements with a wide range of universities from all over Europe and other continents.

All incoming exchange students/trainees should be officially nominated by their home university before they start the application process to our university.

Details on the nomination and application process can be found at https://international.pte.hu/mobility-programs/erasmus/online-application-system

In general, all our full time courses are available for Erasmus+ exchanges students. You can find more details for each program in the coming sections.

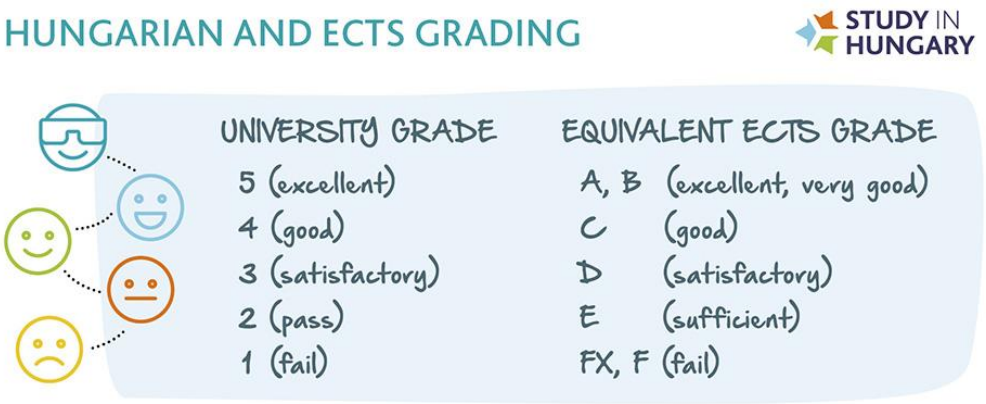
The following programs belonging to different institutes offer various courses for our incoming Erasmus+ students:

Institute offering the courses	**Program name**	**Program coordinator**
Institute of Biology	BSc Biology MSc Biology PhD. Biology and Sport Biology	Pollák Edit
Institute of Chemistry	BSc Chemistry MSc Chemistry PhD. Chemistry	Dr Kollár László
Institute of Physics	BSc Physics MSc Physics PhD. Physics	Dr. Márton Zsuzsanna

Institute of Mathematics and Informatics	BSc Computer Science BSc Mathematics MSc Applied Mathematics	Dr Pauler Gábor,
Institute of Geography and Earth Sciences	BSc Geography BSc Earth Sciences MSc Geography PhD. Earth Sciences	Dr Czigány Szabolcs
Institute of Sport Sciences and Physical Education	BSc Physical Education	Gép Zsuzsanna

PRACTICAL SUM AND SUBSTANCE BEFORE YOU CHOOSE THE COURSES:-

- Some of the courses are available as lecture in which the subject matter is taught by the lectures while others are either seminar or practice. In a seminar there will be more classroom interaction and students will be divided into groups usually for a class activity. For a practice class, there will a practical demonstration related to the course contents of class.
- Do compare the courses with the ones available in your home institute if you plan on getting your credits recognized.
- Some of our courses are divided into two parts i.e. the first one is lecture and the second one is followed by a practice class. Some of these occur parallel however for some courses please refer to the complete courses' list here to check if you will study lecture/practice during your stay.
- Some of our seminars have a head count limit hence register yourself in the Neptun system only if you see an available head count.
- In case of any clashes with the classes or any other issue with your subjects, direct your queries immediately to erasmus@gamma.ttk.pte.hu so that we can address your issues from the very beginning.
- Students are usually not allowed to pick courses from both bachelor's and master's programs together hence if you intend on doing this you should first confirm from the Erasmus+ coordinator if they will be able to help you or not. The same applies for picking up courses from one or more faculties. In this case you have to inform us about this before you prepare the learning agreement so that we can communicate about your issue to our other faculty.
- For queries regarding grade conversion please refer to the photo below:



INSTITUTES OF THE FACULTY AND THE POPULAR COURSES OFFERED FOR ERASMUS+ EXCHANGE STUDENTS

INSTITUTE OF BIOLOGY

The institute consists of seven departments covering several important fields of biology: ecology, plant biology, genetics and molecular biology, microbiology, comparative anatomy and developmental biology, cell biology and neurobiology. The main tasks of the staff are to teach different disciplines of biology to BSc and MSc students and to do an outstanding scientific research work along with the PhD students.

Research topics include: comparative research of plant taxa on anatomical, histological and molecular levels, national and regional survey of weed communities, descriptive and comparative analyses of plant communities, induced systemic acquired resistance in plants during plant – pathogen interactions, pathogenesis-related genes and the regulation of their expression, molecular biology and genetics of the Agrobacterium resistance in grapevine, molecular background of stress processes, isolation of the biosynthetic gene cluster for antibiotic production in the family of Pseudonocardiaceae, detection and characterization of viral zoonotic diseases in Hungary, population biology and community ecology of small mammals, nest predation studies, analysis of microevolutionary processes, chemical neuroanatomy, development and regeneration of peptidergic structures of the nervous system in model invertebrates (earthworms, cockroach and Drosophila), sensory and cognitive function in animal models, the chemical neuroanatomy of the retina and the neuroimmune interactions.

Publications from the institute appear in prestigious journals, such as Ecology, Preslia, Weed Research, Biochemica Biophysica Acta, J Bacteriology, J Clinical Virology, Physiologia Plantarum, J Plant Physiology, Molecular Plant-Microbe Interactions, Cell Tissue Research, J Comparative Neurology, J Neuroscience, J Mol Neurosciences, Regulatory peptides, J Experimental Biology, Environmental Science and Technology.

BSC BIOLOGY

The Biology BSc line offers a full 3-year-education in biology. The study program for the full-time training offers a complete education in biology, with special directions particularly in neurobiology, genetics, microbiology, animal and plant ecology, botany, zoology, and plant physiology. Special directions in the second year have two modules: infra-individual (means more laboratory practice and cellular biology) and supra-individual (means more ecology) courses. Each module has 5-8 subjects with lectures, seminars, and laboratory practices. The basic subjects are presented in lectures, seminars, and laboratory work. The program provides a wider view of the related scientific fields (chemistry and physics). The students will familiarize their knowledge with the most modern instrumentation in our new research center. It covers all aspects of education, research, and innovation in the fields of biomedical, natural, and environmental sciences. It also provides an opportunity to join the research work in 22 different research groups operating in the building. The program requires the completion of 180 credits.

OVERVIEW OF POPULAR COURSES FOR BSC BIOLOGY PROGRAM

The following section gives an overview of important courses which are commonly picked up by our incoming exchange students. The complete list of these available courses is given at the end of the guide. However, you can go through the course curricula for BSc Biology for more details and see all the available courses here.

In case you need further information about any specific course you can contact us to request it.

ENBIOB0101 Mathematics (Lecture)/ ENBIOB0102 Mathematics (Practice)

The aim of the course is to obtain the necessary knowledge and the ability to use certain mathematical techniques for those students who use mathematical analysis in biology/chemistry because of the nature of their curriculum or their interests.

ENBIOB0301 Fundamental Physics

This course introduces the students to the most important fields of physics at basic level. It is a compulsory course for students in biology, geography, mathematics.

The major learning outcomes for this course are problem solving and quantitative reasoning. Upon successful completion of the course, the students will be able to understand the basic concepts of experimental physics. Students will also be able to solve simple problems by studying the appropriate equations.

ENBIOB0201 Fundamental Chemistry I (Lecture)

During the course, students get familiar with the most important fundamentals of material world, atoms and their electron structures. This course also highlights that how the molecules may interact with each other and determines the physical and chemical properties of the given material.

ENBIOB3001 Biological Laboratory Fundamentals (Practice)

The course intends to introduce students to basic glassware, laboratory equipment and methods used in biochemical, comparative anatomy, animal physiology and microbiology laboratory practice. Laboratory rules and safety are also emphasized in the course.

ENBIOB1103 Comparative Anatomy I (Lecture)

Basic course that is designed to provide the students with knowledge related to animal body plan, organs and systems.

ENBIOB1104 Comparative Anatomy I (Laboratory)

This course is a part of laboratory specialization that is designed to provide the students with knowledge related to animal organs' histology and understanding of organ systems' histological organization.

ENBIOB2101 Plant Anatomy and Morphology (Lecture)/ ENBIOB2102 Plant Anatomy and Morphology (Laboratory)

This lecture is a part of the basic professional module and introduces students to the histological and morphological structure of plant body. This lecture serves as a foundation for other botanical courses in main professional module and specialization. Plant cell and histology course is offered as a prerequisite or students can pick it up in parallel.

ENBIOB1301 Cell Biology (Lecture)

Basic course that is designed to provide the students with knowledge related to cell structure and function. The knowledge of this course is needed to study comparative anatomy, basic developmental biology, comparative physiology, molecular biology and basic genetics later.

ENBIOB1302 Cell Biology Laboratory

Practical aspects of cell biology will be taught using laboratory techniques.

ENBIOB0401/ ENBION0501 Organic Chemistry (Lecture/Practice)

This is a part of the ordinary freshman course for non-chemistry majors transferring organic chemistry knowledge through problem solving competencies. It helps understanding the molecular level of biochemical processes.

ENBIOB1201 Zootaxonomy (Lecture/Practice)

Students who successfully complete this course become aware of the principles of taxonomy, have knowledge of the terms of the discipline and correctly apply them, are able to recognize and characterize individual taxa, and are able to produce presentations and summaries on their own taxonomic subjects open to finding out more about the disciplines of taxonomy, for which they have suitable knowledge.

ENBIOB0801 General Ecology (Lecture)

The lecture intends to introduce students to ecology. The aims of the course are to provide up-to-date, general ecological knowledge and approach, to give an insight into the organization of the nature on a supra-individual basis, to introduce the conceptual, structural elements and community organizing processes. The acquired knowledge provides the basis for the specialization courses of ecological courses in the Master`s degree program.

ENBIOB3201 Basic Genetics (Lecture)

This course aims at introducing the most important concepts of genetics. Students completing the course will know the origin and development of the concepts of the field, and have a proficiency in using them. Students are able to interpret and explain the nature of biological variability and genetical processes. Students

undertaking this course should be open minded to the scientific fields in intimate relation to genetics, with special emphasis on genomics and evolution, and disciplines based on genetics, must study and master the results of these, and have the basic information for that. They should be able to interpret and present basic experimental results, related to genetics at the time of completion of this course.

ENBIOB1601 Human Biology (Lecture)

The lecture intends to introduce students to the characteristics of the human body. An overview is provided in the phenotypic variations of human kind, morphological features of the head/skull and body. The course gives an insight into the biological, anthropological differences between sexes, or before and after puberty; Descriptions of the primate and human evolution, similarities and tendencies in evolution are also included in the course.

ENBIOB1701 Biogeography (Lecture)

Biogeography is the study of the spatial patterns of biological diversity and its causes, both in the present and in the past. Biogeographers synthesize information from a very broad range of fields, including ecology, evolution, paleontology and climatology. Hence, this course will provide a historical background for the field of biogeography and the ecological foundations needed to understand the distribution and abundance of species and their changes over time. The students get familiarized with processes of speciation, distribution and extinction of species, with natural lows of species area dynamics. At the end of the course, students are able to link a natural path which governs changes in time (evolution) with those controlling changes in space (e.g. continental drift). During this course, students are open to acceptance of the knowledge of closely related biological disciplines, and strive to synthesize the different knowledge subjects. They are also able to independently interpret, depict and present basic dynamic processes individually and can produce presentations and summaries independently from the knowledge of the subject.

ENBIOB2001 Nature Conservation and Environmental Protection (Seminar)

The purpose of the seminar is to form a general and critical eco-conscious and nature conservation view. The acquired knowledge will facilitate students to understand different branch of studies and use them profitably (e.g. biogeography,

phyto-sociology, general, plant and zoo ecology, physiology, chemistry and physics). Students will know the main topics of environmental protection and nature conservation, Students will also be able to distinguish, recognize and describe the main purposes, methods and tools of environmental protection and nature conservation. In the end, students will be able to form their own opinion on different topics of environmental protection and nature conservation.

ENBIOB3202 Genetics (Laboratory)

The aim of the genetics practice is to put into practice and deepen theoretical concepts, get acquainted with the most important experimental systems, substantiate experimentally and in practice the basic knowledge, to demonstrate the basic and derivate genetical patterns and, mainly through problems, to improve the problem solving ability of students.

ENBION2201/ ENBIOB2301 Evolution (Lecture)

This course aims at introducing the most important concepts of evolution from the perspectives of life sciences, creating the outlines of evolutionary paradigm for the systematic approach to the knowledge mastered in frames of other fields and subject matters Students completing the course will know the origin and development of the evolutionary paradigm, the biological importance of this paradigm, know the concepts of the field, and have a proficiency in using them. The students should be open minded to the scientific fields in intimate relation to evolution, with special emphasis on genetics-genomics, and disciplines based on molecular biology, are able to study and master the results of these, and have the basic information for that, are determined to apply the evolutionary approach in their further studies. At the end of the course, they are able to interpret and present basic experimental results, and argue for the facts of evolution.

ENBIOB1901 Ethology (Practice)

In this course, the students will get some insight on the huge variation in animal behaviour, investigate how mechanisms within individual (e.g. physiology, neuro-endocrine system or genetics) can generate this behavioural variation and we will study the evolutionary factors which shaped this variaton. The students are familiarized with variation in animal behaviour and with their role in evolution. At the end of the course, students are able to distinguish the innate and learned

behaviour; open to accept the knowledge of closely related biological disciplines and strive to synthesize the different knowledge subjects. They are able to independently interpret, depict and present the learned knowledge individually and to produce presentations and summaries independently from the knowledge of the subject.

ENBIOBSV0601 Applied Biotechnology

The aim of the course is to acquaint the students with the biotechnological applications of microorganisms, to teach the principles of research and industry fermentation systems, and to demonstrate the practical application of microbial fermentation and biotransformation systems. The students will be able to know and use the main correlations of applied biotechnology, the basic vocabulary of the field and use their terminology; use the basic methods of the discipline and the tools presented. At the end of the course, they become open to the scientific fields related to the different disciplines of biotechnology, to the directed synthesis of information gained during their previous studies and to understand the contexts. They can independently interpret the basic literature of the field and are receptive to the use of innovative technologies and seek innovative solutions.

ENBIONSV0302 Microtechniques (Practice)

Principle of operation, structure and types of optical examination devices (light microscope, phase contrast, fluorescence and polarization microscope, scanning laser microscope, transmission and scanning electron microscope) are introduced in this course.

Practical tasks include:

- Microscopic measurements, preparation of microscopic slides: vital samples, vital stains, fixed samples, principle of fixation, practical tricks and processing of fixed samples.
- Contrast enhancement of light microscopic sections: general staining, impregnations, special staining methods (indication of granular structures of cytoplasm and connective tissue fibers).
- Classical histochemical methods: detection of nucleic acids, amino acids and proteins, carbohydrates, lipids. Principle and practical tricks of enzyme

histochemistry. Characterization and 50 histochemical reactions of the most important enzymes that can be detected histochemically.

- Biological basis of immunocytochemistry, applicable antibodies and labeling molecules. Advantages and disadvantages of direct and indirect immunocytochemical method are some of the practical course contents.

ENBIONSV0303 Microtechniques (Laboratory)

This course revolves around equipments, devices, chemicals and their use in histological and cytological laboratories including parts and use of light microscopes to take microscopic measurements (length, thickness, area) and calculations.

Students will also be enlightened on preparation, native examination and painting of smear, peel, macerate (Giemsa painting, May-Grünwald and Giemsa staining), immersion and perfusion fixation. Washing, dewatering and embedding of fixed samples in paraffin and synthetic resin, preparation of paraffin sections. Hematoxylin-eosin staining.

Indication of connective tissue fibers (Van Gieson, orcein staining), indication of neurons (Nissl staining, Golgi-Cox impregnation), staining of nucleic acids with gallocyanine, DNA staining by Feulgen reaction, detection of carbohydrates and carbohydrate-containing structures by periodic acid-Schiff reaction, detection of neutral fats by Sudan staining, detection of catalase activity, indication of peripheral neurons by NADH-diphorase reaction, use of the NADPH reaction to detect nitric oxide synthase enzyme activity, detection of acid phosphatase activity by the Gömör method, dilution and storage of antibodies, compilation of antibody diluents, staining of GABA containing neurons by direct and indirect immunocytochemical methods, microphotography including development of black and white negatives and paper images. In this course student will learn determining the useful magnification and will also learn the basics of digital photography.

ENBIONSV0502 General Toxicology (Practice)

This seminar covers the study of toxicology at infra- and supra-individual levels. It presents the toxic effects, the emerging symptoms and the possibilities of measuring the toxicity at the cellular and organic levels. Systematically introduces the important processes that affect the subject of environmental toxicology, the groups of contaminants and natural toxins.

ENBIONSV1502 Models in Neurobiology (Practice)

This course gives special information on preferred models in modern experimental neurobiology. Participating students will freely pick a topic and present it to the audience. The rest of the students will ask related questions and initiate a conversation, discussion on the presented topic. Therefore, besides giving new/additional knowledge on neurobiological topics, this course will train students to articulate their opinion, to form questions driven by their curiosity and to be able to introduce their own knowledge on (or overlapping with) the particular topic.

ENBIONSV0902 Functional Histology

This is a special course for experimental biologists that synthesize knowledge of cell biology, histology, comparative anatomy, physiology and further biochemistry.

ENBIONS0602 Fundamentals in Limnology (Seminar)

This course tends on acquainting students on aquatic environment and aquatic life form, and the relationships between aquatic organisms and their environment. The students will know the characteristics of the aquatic environment and aquatic life forms, and the fundamental processes, relationships and rules in aquatic ecosystems. They will have knowledge on and be able to use the specific terms in limnology. Due to having fundamental knowledge on limnology, the students will be able to specialize themselves in specific fields of limnology (to learn specific ideas and methods of subfields) during their future studies and works.

ENBIOBSV1101 Plant Identification

This course involves observation, preparation and identification of macroscopic lichens, mosses and vascular plant species of ferns, conifers and angiosperms related with morphological and habitat diversity. Identifying and application of diagnostic features (e.g. organization types, bud, leaf, root, stem, bark, spores, flowers, fruits, etc.) by the eye and the use of transmission and binocular microscope on native plant material. Practice is held in laboratory and outdoor localities in natural habitats of South-Hungary (Mecsek mountains and the surroundings) in late spring.

ENBIOBSV1201 Animal Identification and Ecology

The course will help in widening the taxonomic knowledge and ecological approach to the other fundamental and special courses (e.g. zootaxonomy, systematics, ecology, biogeography, zoological monitoring, and applied zoology); identification of species and sampling procedures; the widening of knowledge about model species and animal groups frequently used in ecological modeling; learning of sampling methods and data processing.

ENBIOBSV1301 Biomonitoring (Seminar)

Students get acquainted with theoretical bases of biodiversity monitoring and with the principles of planning and implementing long-term biodiversity monitoring studies

ENBIOBSV1401 Soil Science

The soil science course is a review course which provides an overview of the fundamental concepts of soil science. The main objectives of the seminar are to learn about properties of the soils: abiotic properties, soil microorganisms, fungi, animals, plants and their biological properties. At the end of the course the students will have the knowledge of specific terminology of soil science and apply these in the practical realm. They will have the knowledge of properties, structure and function of the soil and recognize concepts and theories that explain processes of the soil. They will be able to understand and evaluate results of experiments, make presentations and abstracts related to this subject.

ENBIONV0201 Fundamentals in Plant Sociology

This course informs the students about the main methods and limitation of phytosociology. The students will be able to distinguish, recognize and describe the main phytosociological classes of the Hungarian syntaxa, are open for accepting new results of different phytosociological methods and approaches (dynamic outlook). They will be able to form their own opinion on different topics of phytosociology.

ENBIOBSV1601 Conservation of Flora and Fauna (Seminar)

The purpose of the seminar is to form a general and critical botanical and zoological view that can be a useful tool in nature conservation practice. The acquired knowledge will give a comprehensive view on Hungarian and general biotic values that should be protected. Upon these skills, this knowledge gives the students an opportunity to use and understand the results of other sciences (e.g. Biogeography, Phytosociology, General, Plant and Zoo Ecology, Taxonomy and Physiology).

ENBIOBSV1701 Introduction to Applied Ecology (Seminar)

The course introduces the students to scientific principles and different fields of science of applied ecology. It is a practice-oriented course by integrating knowledge of general ecology, zoology and conservation biology. Another objective is to develop students' analytical and synthetic ecological approaches. The subject forms the basis of further subject studies and specialization (e.g. professional core material, supra-individual MSc subjects).

MSC BIOLOGY

The Biology MSc line offers full 2-year-education in biology. The study program for full-time training offers a complete education in biology, with special directions particularly in molecular biology (neurobiology, genetics, microbiology), and animal and plant ecology. Special directions from the second semester offer more laboratory practice in molecular biology or more courses in ecology. The basic subjects are presented in lectures, seminars and laboratory or fieldwork. The program provides a wider view of the related scientific fields (biophysics, biological chemistry). The students will familiarize their knowledge with the most modern instrumentation in our new research centre. It covers all aspects of education, research and innovation in the fields of biomedical, natural and environmental sciences. It also provides an opportunity to join the research work in 22 different research groups operating in the building.

OVERVIEW OF POPULAR COURSES FOR MSC BIOLOGY

The following section gives an overview of important courses which are commonly picked up by our incoming exchange students.

In case you need further information about any specific course you can contact us to request it.

ENMNBIOA0101 Biophysics

In this course, biophysical aspects of physiology and the use of physics based research equipments in biological research are taught. It aims to present biophysical aspects of physiology as well as physical phenomena applications in research equipments. In addition to establishing basic knowledge of biophysical concepts, the focus of students' activities is based on the methods and theories applied in biology research. Upon completing the course, students are expected to understand how the basic principles of natural sciences (as learnt in BSc physics and related courses) are realized in biological organisms; how biomolecules interact with electromagnetic radiation. Students are expected to acquire the understanding of research equipments which can be utilized in their diploma projects.

ENMNBIOA2501 Biostatistics

This course aims at demonstration of the application of basic statistical knowledge and methods that are necessary to answer biological research questions. Meanwhile, it helps students to acquire skills to use a statistical program for data collection related to their research project.

ENMNBIO13 Developmental and Stress Physiology of Plants

This course aims at highlighting the regulation of the plant cell cycle, meristem and leaf primordium. It also highlights the induction of flowering, the ABC model of flower development, gametogenesis, male and female sterility and the molecular background of self-sterility in Solenaceae and Brassicaceae plants. Moreover, the role of Programmed Cell Death (PCD) in plant development, senescence and stress responses along-with constitutive and inducible defense responses are also taught. Moreover in this course the molecular background of plant abiotic stress responses and defence against water stresses (flood, drought, osmotic, salt), acclimation in cold and heat stress tolerance, the role of chaperons in the protection of the proteins are also focused.

ENMNBIO2901 Ecological Fundamentals in Environmental Protection and Nature Conservation

Those students who pass this course will know the main ecological aspects of environmental protection and nature conservation, will be able to distinguish, recognize and describe the main purposes, methods and tools of environmental protection and nature conservation, and are open to accept and/or criticize new results of different approaches on environmental protection and nature conservation. They will be able to form their own opinion on different topics of environmental protection and nature conservation.

ENMNBIO2801 Evolution of the Structure and Function in the Living Being

The purpose of the subject is to put evolutionary and zoological knowledge into the system of analysis from a different perspective, and to develop an EVO-DEVO (evolutionary developmental biology) approach.

ENMNBIO2701 Molecular Cell Biology

In this course, the origin of the eukaryotic cell, its compartments and organelles will be focused.

ENMNBIOA0601 Proposal Preparation and Scientific Communication

With this course, the students will become armored to collect information related to their scientific projects, conceptualizing and writing simple papers and abstracts. They will be able to integrate themselves into teams generating and writing projects.

ENMNBIO3001 Regulatory Biology

Students will acquire knowledge on regulatory processes of the body at both molecular and systems level. They will understand the most important know scientific results and integrate these with the former knowledge obtained during their BSc studies. They will understand the basics of the newest brain research methodologies.

INSTITUTE OF CHEMISTRY

The first predecessor of the University of Pécs was founded in 1367, but the Institute of Chemistry is much younger than that. Our staff is dedicated to maintaining the highest standards both in teaching and scientific research. We offer chemistry training at the BSc, MSc and PhD level. The Institute is composed of three departments: the Department of Analytical and Environmental Chemistry, Department of General and Physical Chemistry, and the Department of Inorganic Chemistry. If the visitor misses a Department of Organic Chemistry, the reason is because it is located at the Medical School for historical reasons and is currently not part of the Institute of Chemistry despite having very close ties both in teaching and research. Although researchers at the Institute have not yet been awarded an IgNobel or a real Nobel prize, we believe we can transmit our passion about science and chemistry to all students we teach.

BSC CHEMISTRY PROGRAM

The Chemistry BSc program offers a full 3-year education in chemistry. The study program offers a complete education in chemistry, with specialisation in inorganic, organic, analytical, environmental, and physical chemistry. Special courses cover instrumental analysis, advanced organic chemistry and physical chemistry measurements. Courses for profound knowledge in mathematics, chemometrics, theoretical chemistry and biochemistry complete the curriculum. The subjects are presented in lectures (theoretical background of the topics, with the aim to provide a wider view for chemical application), seminars with a discussion of the topics and practising chemical calculations, and laboratory work. The students will familiarise their knowledge with the most modern instrumentation. The program requires the completion of 180 credits.

OVERVIEW OF POPULAR COURSES FOR BSC CHEMISTRY PROGRAM

The following section gives an overview of important courses which are commonly picked up by our incoming exchange students. The complete list of these available courses can be found at the end of the guide. However, you can go through the course curricula for BSc Chemistry for more details and see all the available courses here.

In case you need further information about any specific course you can contact us to request it.

KEMNA1101 General and Inorganic Chemistry I. (Lecture)

The aim of this course is to provide the basic ideas of general and inorganic chemistry. The lecture intends to introduce students to basic concepts essential to further courses. Students completing the course will have knowledge on the basics of general and inorganic chemistry. They will be able to classify major types of chemical compounds, analyse their bonding properties and physical properties. They will also have a competence of evaluating readings in general and inorganic chemistry. Their positive attitude towards innovative methods will increase significantly.

KEMNA1102 General and Inorganic Chemistry I. (Seminar)

The seminar intends to introduce the basic tools of solving calculation problems in general and inorganic chemistry. Students completing the course will have knowledge on solving problems related to concentrations, gas laws, colligative properties and stoichiometric calculations. They will be able to solve individually chemical calculation problems. Students will also have a competence of solving new problems in the related fields of the above mentioned topics. Their positive attitude towards calculation problem methods will increase significantly at the end of the course.

KEMNA1103 General and Inorganic Chemistry I. (Laboratory)

This course is focused on acquiring the knowledge of basic laboratory techniques, laboratory equipments, measurements and calculations. During this the students will get acquainted with basic glassware and lab equipments and will be able to carry out basic laboratory procedures

KEMNA1104 General and Inorganic Chemistry II. (Lecture)

The lecture intends to introduce students to give an overview on the chemistry of the elements of the periodic table. A special focus is given on the bioinorganic chemistry issues especially in case of alkali, alkaline earth metals, as well as selected transition metals such as iron and copper. Students completing the course will have knowledge on the compounds of metals and non-metals as well as their compounds. They will be able to characterize basic compounds of metals and non-metals regarding their structure, bonding properties, chemical and physical properties. They will develop competence of evaluating readings in inorganic chemistry.

KEMNA1105 General and Inorganic Chemistry II. (Seminar)

The seminar intends to introduce the basic tools of solving calculation problems in general and inorganic chemistry. Students completing this course will have knowledge on solving problems related to redox(reduction and oxidation) reactions, electrochemistry and pH calculations of strong acids and bases, as well as week acids and bases. They will be able to solve individually chemical

calculation problems and they will develop a competence of solving new problems in the related fields of the above mentioned topics.

KEMNA1106 General and Inorganic Chemistry II. (Laboratory)

This course focuses on preparation of the elements and their compounds; examination of their physical and chemical properties. At the end of the course, students will be able to carry out basic experiments alone and will have acquired wide-ranging knowledge in the field of inorganic chemistry.

ENKEMNA1501 Organic Chemistry I/ ENKEMNA1503 Organic Chemistry II. (Lecture)

This is a part of the ordinary freshman course for chemistry majors to teach the nomenclature, structure, reactions, synthesis and utilization of main classes of organic compounds.

ENKEMNA1502 Organic Chemistry I. Laboratory/ Organic Chemistry II. (Laboratory)

The objective of laboratory practice is to introduce students to the main organic chemical experimental. They examine the specific reactions and characteristics of functional groups during the laboratory classes.

MSC CHEMISTRY

Chemistry Master of Science (MSc) studies can be joined at the Faculty of Science of the University of Pécs. The courses are open from September, each year, and are continued during a 4-semester cycle. The students who have studied chemistry, biochemistry, physics, and pharmacy at the undergraduate level (BSc) will continue their knowledge at the Master of Science level. The subjects of the Chemistry MSc studies include: Advanced mathematics, Solid-phase physics, Molecular biology, Coordination chemistry, Elemental organic chemistry, Advanced physical chemistry, Instrumental analysis, Theoretical chemistry, Organic chemistry of natural compounds, Surface chemistry, Proteins and protein networks, Advanced chemometric, Environmental technology, Pharmaceutical chemistry, Radiochemistry, and several more specific applied chemistry subjects. The education is composed of theoretical lectures, tutorial seminars, and practical sessions. The students in the fourth semester prepare a diploma-work in an experimental topic, which will be defended, and they pass a general final exam for getting the diploma.

List of courses can be checked here.

You can request more details about each course by contacting us via an email.

INSTITUTE OF PHYSICS

The Institute of Physics comprises departments of Experimental Physics, Theoretical Physics, Computational Physics, a joint department of Astronomy in Baja and the MTAPTE High-Field Terahertz Research Group. The stuff runs Physics BSc, MSc and PhD programmes both in Hungarian and in English and a Physics teacher training course in Hungarian. Besides education, the Institute's groups are active in different research fields. The High Field Terahertz Research Group is highly recognized worldwide and unique in its field within Hungary. They run research projects on generation of high-field terahertz radiation, terahertz and femtosecond nonlinear optics, and application of the high energy terahertz field for particle acceleration. The group of quantum optics and quantum informatics studies periodic single photon sources, and the realization of nonclassical states of light with propagating wave excitation. Another group focuses on X-ray soft lasers and plasma waveguides. The laser applications group has run projects in laser cleaning and materials analysis on different art's objects.

BSC PHYSICS

The Physics BSc line offers full 3-year-education in physics. The study program for the fulltime training offers a complete education in physics, with special directions particularly in IT in physics and Applied physics (with a strong emphasis on laser physics). The curriculum is organized in modules covering the Introductory courses in nature sciences (24 credits) and Common courses (52 credits) for all physics students (basic courses in mathematics, physics and informatics). The courses related the specializations in Applied physics cover the advanced topics in experimental and theoretical physics, the necessary courses in mathematics and informatics. The focus of the specialization in Informatics in physics is data acquisition, signal processing in LabView, database management and programming in C# language. The students will familiarize themselves with the most modern instrumentation.

OVERVIEW OF POPULAR COURSES FOR BSC PHYSICS PROGRAM

The following section gives an overview of important courses which are commonly picked up by our incoming exchange students. The complete list is available at the end of the guide.

However, you can go through the course curricula for BSc Physics for more details and see all the available courses here.

In case you need further information about any specific course you can contact us to request it.

ENFIZNA1401 Mechanics (Lecture)

The Mechanics lecture aims to provide an introduction to classical, non-relativistic mechanics focusing onto the mathematical aspect of it. In the frame of the Newtonian formalism, previously introduced special problems, like periodic motions, Kepler's problem, conservation laws, etc. will be analyzed with more profound mathematical details. Beyond the Newtonian approach, the Lagrangian and the Hamiltonian formalism will be also introduced. Concerning the latter two

formalisms, the basic principles regarding the derivation of the equation of motion will be also discussed in detail.

ENFIZNA1402 Mechanics (Practice)

In the frame of the practice course, students turn to be familiar in the usage of the different formalisms, which were mentioned during the lecture. Solving selected exercises, she / he can deepen his knowledge regarding the topics, which were discussed in a general way during the lecture.

ENFIZNA2101 Computer Technology I. (Lecture)

The course discusses the substantial knowledge for computer technology and serves as a foundation of further, more advanced subjects. Boolean algebra and binary arithmetic, number representations, transformation and simplification of boolean functions. Canonical forms of boolean functions, systematic simplification methods, hazards and their elimination, sequential circuits, storage components. Design of sequential circuits, synchronous and asynchronous circuits and microprogrammed sequential circuits.

ENFIZNAKV4301 Metrology (Lecture)

Metrology lecture provides insight into the topics and methods of the main fields of metrology: measurement science, measurement technique and metrological services and regulations. The visualization of measurement data, the random nature of measurement results and basic statistical concepts and methods will be discussed. The students will be expected to apply these in everyday situations, like understanding press accounts on measurement results, or analysis of datasets in a report. Those who have completed the course will know and distinguish the problems of scientific metrology, measurement technology, legal metrology and know the main characteristics of random variables, be able to correctly understand measurement results, be able to apply the learned concepts in their later studies and be able to apply the learned concepts in their everyday life.

ENFIZNA3002 Metrology (Practice)

Introduction into the basic statistical interpretation of measurement data. Practical problem solving on the basis of the lecture topics such as Basic units of SI and their measurement; measurement of on-electric signals; calibration of the

acquisition system, validation of measured data; uncertainty of the measured data, systematic and random errors, propagation of errors.;basic measurement statistics (normal distribution, expected value, standard deviation, confidence interval, statistical probes)); digital data acquisition, sampling theorem; fourier analysis; correlation analysis; interpretation of data (curve fitting, regression, linearization).

ENFIZNA0801 Electricity and Magnetism (Lecture)

This course aims at developing knowledge and understanding of the concepts of electricity and magnetism.

- Electrostatics: Electric field in vacuum, Coulomb's Law, Elementary charge and the most important special distributions of it, Work of the electric field, work and electric potential, determination of the elementary charge, electric capacitance, capacitors, electrostatic devices, Energy of the electric field, dielectrics, The electric polarization and field strength in dielectrics, The fundamental electrostatic laws in dielectrics
- The laws of direct currents: Ohm's Law, various forms of Ohm's Law, Kirchhoff's Law, Resistances in series and parallel, current and voltage measurement devices, measuring resistances, serial and parallel battery configurations, Electric work and power of direct current
- Magnetostatics: Basic magnetic phenomena, magnetic field, flux of the magnetic field, forces in magnetic field, biotlaw, earth magnetism, magnetic induction and field strength, magnetic properties of solids, magnetic circuits.
- Current conduction phenomena: Free electrons in metals, band theory of metals, electron energy distribution in conductors, thermionic electron emission and work function, contact potential, thermoelectric effects, semiconductors, different types of semiconductors, current in dielectrics, electrolytic dissociation and electrolysis, batteries, charge transport in vacuum, electron microscope, electron tubes, electric conduction in gases, gas discharges, natural electrostatic discharges.
- Electromagnetic induction: Faraday induction, mutual induction, energy of the magnetic field, transient signals in dc circuits, electromagnetic oscillations, Impedance, forced oscillations in serial and parallel RLC circuits, Electric work and power of alternating currents, free electromagnetic oscillations in closed RLC circuits, coupled electromagnetic

oscillations, measuring inductance and capacitance, high frequency oscillations.

ENFIZNA1901 Quantum Mechanics (Lecture)

This lecture helps the students to acquire knowledge of quantum behavior and of basic methods of quantum mechanics.

- Quantum behavior: particles and waves, probability amplitudes. The wave function as probability amplitude. The time-dependent Schrödinger equations. Stationary states and the time-independent Schrödinger equation, the Hamilton operator.
- Motion in one-dimensional static potential: step potential, infinite well, potential barrier. Postulates of quantum mechanics: description of physical state with wave function or state vector, Hermitian operators as observables, possible results of measurements and outcome probabilities, collapse of wave function after a measurement. Mean value of an observable and the root-mean-square deviation. Evolution of the mean value, Ehrenfest theorems.
- The linear harmonic oscillator. Solution of Schrödinger equation in the truncated series form, energy eigen-values. The creation and annihilation operator formalism. Angular momentum in quantum mechanics: definition, commutation relations, eigenvalues of the orbital angular momentum operators. Spin, bosons and fermions. The hydrogen atom. Conservation of angular momentum in central potential. Calculation of energy eigen values by seeking the solution of the Schrödinger equation in truncated series form.

ENFIZNA1902 Quantum Mechanics (Practice)

This practice course helps students to acquire basic knowledge of treating quantum mechanical problems.

- Quantum behavior: particles and waves, probability amplitudes. The wave function as probability amplitude. The time-dependent Schrödinger equations. Stationary states and the time-independent Schrödinger equation, the Hamilton operator. Motion in one-dimensional static potential: step potential, infinite well, potential barrier.

- Postulates of quantum mechanics: description of physical state with wave function or state vector, Hermitian operators as observables, possible results of measurements and outcome probabilities, collapse of wave function after a measurement. Mean value of an observable and the root-mean-square deviation. Angular momentum in quantum mechanics.

ENFIZN1001 Thermodynamics (Lecture)

The main objectives of this course are mastering the basic thermodynamic concepts, and acquiring general skills in scientific reasoning through the subject of thermodynamics.

- Thermal equilibrium and temperature: Zeroth law of thermodynamics, types of interactions, equilibrium; The ideal gas law; The density; Partial pressure The kinetic theory of gases, basics of statistical mechanics: Average translational kinetic energy of a molecule; Equipartition theorem; Internal energy of ideal gas; Maxwell Boltzmann distribution. The thermal processes for an ideal gas, gas laws (Boyle's, GayLussac's Law) - isothermal, isochoric, isobaric
- First law of thermodynamics: Quasi-static processes; The work; Interpretation of the 1st law of thermodynamics, the heat; 1st law of thermodynamics for finite processes; 1st law of thermodynamics for differential (elementary) processes; Cycles (closed) Analyses of different processes in the frame of the first law of thermodynamics: isochoric; isobaric; isotherm; adiabatic Heat capacity, specific heat, molar heat: Specific heat; Measurement the specific heat capacity (calorimetry); The molar heat; The specific heat of an ideal gas (isochoric, isobaric); Molar isobaric, isochoric heat; Robert – Mayer's Law, Change of phase and latent heat. The Van der Waals (real) gas: State equation of the Van der Waals gas; Derivation of the internal energy of the Van der Waals gas; Gay-Lussac Joule experiment with ideal gas and Van der Waals gas Special processes by ideal gas: Point of analysis; Adiabatic process; Polytropic process of ideal gas Introduction to 2nd law of thermodynamics: Reversible and irreversible process; Phenomenological approximations.
- The exact mathematical formalism of the 2nd law of thermodynamics: efficiency of cycles (engines); Carnot-cycle; The Clausius theorem; The

Entropy; Second law of thermodynamics for finite and infinitesimal process; Calculation of the entropy for special processes (Isochoric, isobaric, adiabatic, process passing through the origin of p V diagram, isothermal, calorimetry, change of phase). Third law of thermodynamics: Enthalpy, Free energy, Gibbs potential (Free enthalpy); Reversible process; Maxwell's Relations, Nernts Law, Consequences of the third law. The fundamental state equation Summary of interactions

ENFIZN1701Electrodynamics (Lecture)/ ENFIZN1702 Electrodynamics (Practice

It aims to improve analytical and problem solving skills by placing treatment of electrodynamics phenomena on a more general foundation.

- Electric charge and electric field, basic equations of electrostatics. Poincaré identities, the electrostatic potential. Poisson equation and its solution. Gauss and Stokes theorem. Dipole moment and polarization, electrostatics ofdielectrics, metals. Magnetic field, Lorentz force, vector potential. Magnetostatics of polarizable media. Law of induction, charge of conservation and displacement current. Maxwell's equation in vacuum and medium. Wave equation and its plane wave solution. Dispersion, field energy, field momentum. Refraction Dispersion, field energy, field momentum. Refraction and reflection of monochromatic plane wave on the boundary of two dielectrics. Galilean and Einstein relativity. Lorentz transformation, time dilation, length contraction. Proper time, the twin paradox.

ENFIZN1101 Waves and optics (Lecture)/ ENFIZN1102 Waves and Optics (Practice)

The major learning outcomes for this course are Problem Solving and Quantitative Reasoning. Upon successful completion of the course, the student will be able to understand the basic concepts of oscillations, waves and optics. Students will have the basic understanding of both geometrical and wave optics. They will be able to solve simple problems by studying the appropriate equations describing optical and general wave phenomena.

- Short description: Oscillations. Harmonic and anharmonic oscillations. Differential equation of harmonic motions. Mathematical pendulum, anharmonicity. Result of more harmonic motions, beating. Decomposition of oscillations. Fourierseries. Damped oscillations, forced oscillations, their differential equations. Resonance. Coupled oscillation.
- Waves. Types of waves, polarization. Wavelength, traveling velocity. Function of a wave traveling along a line. Traveling velocity of longitudinal and transversal mechanical waves. One dimensional wave-equation and itssolutions. The principle of superposition. Interference of waves, constructive and destructive. Standing wave, resonant frequency. Wave-group. Phase- and group velocity. Reflection, refraction and interference of twodimensional waves. Huygens and Huygens-Fresnel principle. Wave-function of three dimensional waves. Plane-wave, spherical wave. Energy density in wave. Sound. Production and sensing of sound. Properties of sound. Measuring of sound intensity, the decibel scale. Sensing of sound, the unit of phone. Measurement of the speed of sound. Doppler effect. Head-wave, Machnumber.
- Geometrical optics. Propagation of light. Velocity of light. Reflection and refraction. Total reflection. Plane and spherical mirrors. Lenses and thick lenses. Lens systems. Aberration of lens. Camera, projectors. Magnifier, microscopes, telescopes. Eye. Colors. Wave optics. Wave theory of light. Superposition and dispersion. Coherence condition and interference. Interferometers. Dielectric layers. Diffraction. Gratings. Atmospheric light phenomena. Holography. Polarization.

ENFIZNS3101 LabView Basics

The course introduces the students to LabVIEW. Besides being introduced to the main features of the software through presentations, the students are required to learn by solving simple problems. By the end of the course, students can write simple codes for modeling basic physical calculations, and should be able to use the built-in assistance tools (Help, Example files, etc.) to learn new features.

- Short description: Definition, methods and instruments of measurement.
- Parts of a LabView monitor: front panel, block diagram, the structure of a vi. The elements of the G language. Data-flow based, parallel execution. The

most important data types. Programming structures. Creating and including sub-vi-s. LabVIEW VI-library (.llb). Priorities. Timing and synchronization of different parts of the program. Local and global variables. File I/O. Implementation of small example codes.

- Usage of the assistance tools, reading example vi-s.

ENFIZNS3201 Physics and Electronics Laboratory II.

In this course students will acquire experimental skills, interpretation of measurement data, proper documentation of measurements.

- Examination of processes with ideal gas. Verification of the gas laws. Measurement of the linear thermal expansion coefficient of solids. Measurement of the thermal expansion coefficient of fluids. Measurement of the heat capacity of a calorimeter. Measurement of the specific heat of a solid body with calorimetry. Measurement of the latent heat of melting of ice. Measurement of the heat capacity ratio (cp / cv) of air. Examination of the pressure dependence of the boiling point. Measurement of the latent heat of boiling of water. Measurement of Joule-Thomson coefficient. Measuring of voltage and intensity of direct current and resistance. Method to measure the resistance.
- Ohm’s law. Potentiometer. Resistence measurment by means Wheatstone’s bridge. Power supplies. The intensity of a coil's magnetic field, force between two current carrying wires. Electric heating. Calibration of temperature sensors. Temperature measurements by thermo-electric detectors (thermistor and thermocouples). Calorimetry. Study of alternating current resistance. Impedance of R, L, C component. RLC series circuit and resonance. Measurement of the RLC resonance curve.

MSC PHYSICS

In the Physics MSc course, we offer comprehensive knowledge. Those skills and subject groups such as Modern Physics, Optics, and Laser Physics, Physics of Quantum Systems, Atomic and Molecular Physics encompass the science of the main areas of Physics based on the bachelor's level of Physics. Practical courses and seminars provide students with hands-on skills.

The seminars and practical courses outnumber the number of lectures in the curriculum. This is a good reflection of our preference for learning methods based upon active student participation. We encourage students' activity with homework, self-project tasks, and we support cooperative learning methods. The subjects of Quantum Systems and Laser Physics are closely related to the important research areas of the Institute of Physics.

Courses create a foundation for writing thes es related to Quantum-Optics, Quantum Informatics, Laser Physics, and Nonlinear Optics and Terahertz Physics subjects and for student research work. Furthermore, students are prepared to enter a doctoral program. A variety of elective and optional courses allow students to deepen their knowledge in subjects that correspond to their individual interests.

List of courses can be checked here.

In case you need further information about any specific course you can contact us to request it.

INSTITUTE OF MATHEMATICS AND INFORMATICS

The institute consists of four departments covering the fields of theoretical and applied mathematics, informatics and biorobotics. The academic staff consists of over 25 people on permanent positions, most of them with PhD degrees, 8 with Habilitation and 3 are Doctors of the Hungarian Academy of Sciences. They are teaching different disciplines of mathematics and informatics to BSc and MSc students and are doing a significant scientific research work.
The main research topics are related to algebra, number theory, mathematical analysis, geometry, combinatorics and graph theory, mathematical logic, applied mathematics, as well as certain fields of informatics and biorobotics. Publications from the institute appear in prestigious journals, such as Journal of Fourier Analysis and Applications, Journal of Mathematical Analysis and Applications, Journal of Number Theory, Acta Arithmetica, The Ramanujan Journal, Results in Mathematics, Acta Mathematica Hungarica, Studia Logica, Journal of Chemometrics, Publicationes Mathematicae Debrecen, Mathematics, Mediterranean Journal of Mathematics, Linear Algebra and Its Applications, Colloquium Mathematicum, International Journal of Intelligent Technologies and Applied Statistics, Analysis Mathematica, Discrete Applied Mathematics, Journal of Algebra and Its Applications, International Journal of Wavelets Multiresolution and Information Processing. Department of Mathematics and Applied Mathematics
The members of Departments of Mathematics and Applied Mathematics are involved in the Bachelor (BSc) programmes of Mathematics and Computer Science and the Master (MSc) programme of Applied Mathematics.

The research topics include: group theory, algebraic and analytic properties of arithmetic functions, harmonic and wavelet analysis, finite geometry, code and graph theory, and their applications.

Several English-language courses, individual consultations and research possibilities are offered to ERASMUS fellowship holders and other foreign students.

DEPARTMENT OF INFORMATICS AND IT AND BIOROBOTICS

These two departments keep its focus on several very important aspects of informatics teaching:

• modernatisation of courses
• emphasise research and study publications
• offering practical, market-conform courses
• teaching of biorobotics based on state-of-the-art technologies; modelling and measuring movements of the human body

The main direction of research is biorobotics related to science and IT training. On the one hand, biorobotics is responsible for applying knowledge about the natural regulation of biological systems (neural motion control) in the control of artificial structures, e.g. robots. On the other hand, the use of robots in the rehabilitation of the movement of biological systems, e.g. human limbs, if the control of movement has changed or been eliminated due to neurological injury (e.g. stroke or spinal cord serenity). We use experimentation, IT and mathematical methods to understand and teach about movement control.

BSC COMPUTER SCIENCE

Supercomputer, great student-teacher ratio, valid degree all over the EU, highly qualified and internationally recognized professors, up to date knowledge, friendly classroom atmosphere, personal interactions with the teachers, flexible and high quality education – this is how we can describe our BSc Computer Science program.

What we can offer:

• Software-oriented thinking
• Strong mathematic and algorithmic basics (e.g. encryption, telecommunications, modern industry standards, etc.)
• Software and system design
• Modern technologies
• Backend / frontend
• Instructors from the industry
• Student-friendly environment
• Keeping group numbers low
• Optional one-on-one consultations with instructors

OVERVIEW OF POPULAR COURSES FOR BSC COMPUTER SCIENCE

The following section gives an overview of important courses which are commonly picked up by our incoming exchange students. The complete list of these available courses can be found at the end of the guide.

However, you can go through the course curricula for BSc Computer Science for more details and see all the available courses here.

If you need more details regarding any specific course you can request it via an email.

ENPTIA0301 Elementary Linear Algebra

The aim of the course is to familiarize students whose curriculum involves higher mathematics with the basic concepts and methods of linear algebra. Students completing the course will have a knowledge on the basics of linear algebra and its

terminology. They will be able to use elementary methods of linear algebra in solving certain simple problems and they will be open to follow simpler mathematical approaches to problems and intend to improve their problem solving abilities.

ENTPIA0201 Calculus I (Lecture/Practice)

The lecture intends to introduce students to the world of calculus. The purpose of the course is to provide the students with the basic tools necessary to start comprehending the foundation underlying modern science and technology. Students completing the course will have familiarity with questions and methods related to that segment of the calculus that they are likely to encounter in their professional life.

ENPTIA4101 Analysis I (Lecture/Practice)

The lecture intends to introduce students to the basic notions of mathematical analysis, concepts of real numbers, convergence, limits of sequences and sum of series. The course helps the development of problem solving skills. Students completing the course will have knowledge on basic concepts and theorems of mathematical analysis. They will be able to apply the properties of these concepts and will have a competence of evaluating readings in Analysis 1 .

ENTPIA0501 Probability and Statistics

The lecture intends to introduce students to the world of probability and statistics. The course gives an insight into the basic ideas and ways of thinking encountered in probability theory and statistics. Students completing the course will have familiarity with questions and methods related to probabilistic problems that they are likely to encounter in life and during their work.

ENPTIB0701 Mathematical Logics

The lecture intends to introduce students to the basics of mathematical logic (both the propositional and the predicate calculus) including basic definitions, results, and methodology. A further aim is to discuss the connections between Mathematical Logic and Mathematics, and between Mathematical Logic and Computer Science. Students completing the course will have knowledge on the basic notions and results of mathematical logic, along with the related specific

terminology. They will be able to apply models of Mathematical Logic to practical problems, and to solve them. They will also be open to incorporate models of mathematical logic into their problem-solving thinking. Moreover, they will have a competence of representing available information into models of mathematical logic.

ENPTIA0901 Numerical Methods I (Lecture/Practice)

The lecture presents the theoretical foundation of numerical algorithms the students will meet the most important methods for solving problems of scientific applications. Students completing the course will have knowledge on basic numerical computation and approximation, vocabulary, models and scholars. They will be able to evaluating readings in this topic. They will know the most important methods and they will be aware of its limitations.

ENPTIA0902 Numerical Methods II (Practice)

Students completing the course will have knowledge on basic numerical computation and approximation, vocabulary, models and scholars. They will be able to evaluate readings in this topic. They will know the most important methods and they will be aware of its limitations.

ENPTIA0601 Operations Research(Lecture)

The lecture presents the theoretical foundation of operations research the students will meet the most important methods for solving problems and their economical applications. Students completing the course will have knowledge on basic operations research and approximation, vocabulary, models and scholars. They will be able to evaluate readings in this topic and will also know the most important methods and they will be aware of its limitations.

ENMNAMA11 Discrete Mathematics I / ENPTIA0102Discrete Mathematics II Lecture/Practice)/

The aim of the course is to learn discrete structures, related algorithms, proof techniques in discrete mathematics. Students completing the course will be familiarized with the terminology, concepts and methods widely used in computer science.

ENPTIA0801 Basics of Computer Science(Lecture/Practice)

The aim is to get to know the basic definitions, results, and methodology of computer science, know some nontrivial algorithms on pseudo code level, know proofs of the correctness of some algorithms, along with the corresponding methodology.

ENPTIA1201 Elementary Programming

The aim of the course is to obtain a very basic insight into the basics of programming in a procedural language in an interpreter environment. The course uses the Python language. The main intention is to equalize the high-school level background of entering students by establishing a common minimal knowledge and skill set expected from the students. Students completing the course will have a knowledge on the most basic concepts of imperative-language programming such as, e.g. assignment, variable, control statements (conditionals, loops), arrays, etc. They will be able to use the suitable professional vocabulary of the topic. They will also utilize the known concepts for implementing simple computer programs and solve basic programming problems. They will be open and intend to significantly increase their programming abilities and skills. They will be able in a stand-alone way to create simple programs in Python.

ENPTIA1601 Programming I (Practice)/ ENPTIA1602 Programming II (Practice)

Students will know basic programming structures, software development methodology, and more important programming environments. They will be introduced to C++ programming language and the basics of programming. With the help of acquired methods students lay down the foundation for their further studies in programming. They will be able to practice algorithmic thinking, programming basic algorithms, and designing, coding, testing and managing individual programming tasks. The bases for next semester's Programming II. are developed in this course.

ENPTIA1701Compilers and Assemblers (Practice)

Students are introduced to the operation of compilers, different analytical methods. They will have knowledge of low-level programming of processors and

microcontrollers. They will know the basics of Assembly programming language, and will be familiar with elementary (binary) algorithms.

ENPTIA1001Algorithms, Data Structures

The aim of the subject is that students may know the basic data structures, and their general algorithms, along with the most commonly used algorithm design paradigms. Students, completing the course will know the basic principles of the commonly used two families of data structures, namely the linear data structures (vectors, lists, collections), and the graphs, and they will own the ability to represent them in computers, and to create appropriate algorithms for the most common tasks over them. They will also be able to express and implement such algorithms, able to understand an algorithmic problem, and to decide the necessary algorithm creational paradigm, and to implement the algorithm.

ENPTIB1101 Formal Languages and Automata

The lecture intends to introduce students to the basics of formal languages and automata theory including the basic definitions, results, and methodology. Students completing the course will have knowledge on the basic notions and results of the theory of formal languages and automata, along with the related specific terminology. They will be able to solve problems related to generative grammars and finite state machines.

ENPTIA2301 Distributed Systems, Parallel Programming

This is an introductory course to the problem of distributed systems. It also gives an insight into the theory and practice of parallel programming. After taking this course the students will know the architecture and management of distributed systems; and be able to use the knowledge gained during their IT learning in the special field of distributed systems.

ENPTIA1401 Relational Databases

The aim of the course is to develop skills and basic professional knowledge of designing, implementing and using relational databases. Students completing the course will have a knowledge on the basic concepts of relational databases (schema, dependencies, normal forms, transactions, design techniques, etc.), on the sql language, on the role of relational databases in software systems. They will use

the suitable professional vocabulary of the topic. They will also be able to use relational databases, recognize design and implementation issues in relational database systems. They will be open to apply relational databases and develop special knowledge on particular relational database management software. Students will intend to use the obtained knowledge in professionally solving database-related problems. Finally students will be able in a stand-alone way to design, implement and use small sized relational databases and perform basic tasks of database administration.

ENPTIA1301 Methodology of Programming I (Lecture/Practice)

Main purpose of the course is that students own the methodology and usual approaches of programming and algorithm constructions, based primarily on C/C++ as a programming language. Students, completing the course:

- know the basic elements of C programming language,
- they own the basic approach for algorithm design
- are able to express and create algorithms in the basic imperative approach, using C as a programming language
- are able to choose and to decide the methodology to be used for a given problem, and they are also able to apply it for the problem, and finally to implement the algorithm in a computer.

ENPTIA1501 System Engineering

The purpose of the course is to explain the paradigm of "programming in large". Students may get a view of the software production and project management technologies, with special emphasis on the UML/RUP methodology. They are expected to be able standalone to design a medium size software. Students completing the course will know the basic concepts of software design, they own the concerned word and concept sets. They will be able to design steps and phases of software production, and to supervise such a software project, able to create the necessary products and diagrams, expressed in OMG UML graphic design language and able to lead an industry project that applies the RUP methodology for software design.

ENPTIA1801 Professional Communication

The aim of the course is to familiarize the students with the techniques of obtaining information in science and technology and with the basics of scientific and technical writing.

Students completing the course will have a knowledge on various types of scientific and technical publications and their style. They will be able to read professional text, query the literature of topics, prepare a proper bibliography, and prepare simple scientific or technical documents, and perform short presentations. They intend to adopt a proper attitude in scientific and technical communication.

ENPTIA2101Operating Systems

The theoretical part of the course introduces the methods and tools of design and development of operating systems. The practical part establishes practical skill related to operating systems, illustrates the concepts and methods learned in the lectures in practice.

ENPTIA1901 Computer Architectures

The course introduces the basic concepts of computer architectures.

ENPTIB2001 Computer networks

The lecture intends to introduce students to the basics of computer networks. Students completing the course will have knowledge on the layer concept, the roles and devices of the OSI and TCP/IP layers, and the main standards. They will be able to understand the basic operation of computer networks and Internet, and comprehend the most important Internet services.

ENPTIA2201 Information and Data Security

The aim of the course is to understand the importance, basic concepts and techniques of information and data security, cyber security and cryptography. Students completing the course will have knowledge on the basic concepts of information and data security, cyber security and cryptography. They use the suitable professional vocabulary of the topic. They will be able to apply and evaluate solutions related to the topic. They will be open and intend to extend their knowledge in the field, respect the rules of cyber security.

ENPTIB2401 Operation of IT Systems

Upon successful completion of this module, candidates will be able to demonstrate their competence in, and their ability to:

•understand types of MIS applications in organisations

• discuss the development of management information systems in organisations.

• select and design MIS systems appropriate to meet management requirements.

• critically evaluate MIS contributions to the strategic management of organizations

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BSC MATHEMATICS

The Mathematics BSc line offers full 3-year-education in mathematics. The program provides a general bachelor level education in mathematics, which can serve as a basis for further studies in mathematics or computer science. The basic courses include logics, computer science, linear algebra, number theory, calculus, geometry, probability theory and statistics and game theory. Advanced courses include mathematical programming and operations research, group theory, computer algebra, numerical methods, and applied computer science. The courses usually constitute of two parts: a lecture and a problem-solving seminar, each worth 2 or 3 credits, depending on the nature of the topic. In addition to the 120 credits which have to be collected from the courses, 60 credits are awarded for the preparation of the thesis and this completes the 180 credits required for finishing the program. The bachelor program in mathematics is the basis for the Master (MSc) line of applied mathematics (with a special focus on operations research) available at the University of Pécs as well as other MSc courses.

OVERVIEW OF POPULAR COURSES FOR BSC MATHEMATICS

The following section gives an overview of important courses which are commonly picked up by our incoming exchange students. The complete list of these available courses can be found at the end of the guide.
However, you can go through the course curricula for BSc Mathematics for more details and see all the available courses here.

If you need more details regarding any specific course you can request it via an email.

ENMATNA1202 Analysis in Several Variables (Seminar)

The lecture intends to introduce students to the concepts of line integral and the elements of complex analysis: complex derivative, complex integral, holomorphic functions, integral formulas of Cauchy and applications. The course helps the development of problem solving skills. Students completing the course will have

knowledge on basic concepts and theorems of Multivariable Analysis. They will be able to apply the properties of these concepts. They will also have a competence of evaluating readings in Analysis. Their positive attitude towards methods calculating limits will increase significantly.

ENMATNA1301 Abstract Algebra (Lecture)

The lecture intends to introduce students to the basic concepts and properties of abstract algebra. Students completing the course will have knowledge on abstract algebra, and vocabulary in the topic. They will be able to apply the algebraic and number theoretic properties, they will have a competence of evaluating new mathematical results. Their positive attitude towards innovative methods in mathematics will increase significantly

ENMATNA1302 Abstract Algebra (Seminar)

It is intended to solve exercises on the basic concepts and properties of abstract algebra. Students completing the seminar will have knowledge on abstract algebra, and vocabulary in the topic. They will be able to apply the algebraic and number theoretic properties and will have a competence of evaluating new mathematical results. Their positive attitude towards innovative methods in mathematics will increase significantly.

ENMATNA0903 Geometry II (Lecture)/ ENMATNA0904 Geometry II (Seminar)

The main aim of the course is to introduce the theory of geometric transformations.

ENMATNA1401 Probability Theory and Statistics (Lecture)/ ENMATNA1402 Probability Theory and Statistics (Seminar)

The lecture intends to introduce students to the world of probability and statistics. The course gives an insight into the basic ideas and ways of thinking encountered in probability theory and statistics. Students completing the course will be familiarized with questions and methods related to probabilistic problems that they are likely to encounter in life and during their work.

ENMATNA1701 Complex Functions (Lecture)/ ENMATNA1702 Complex Functions (Seminar)

The lecture intends to introduce students to the concepts of line integral and the elements of complex analysis: complex derivative, complex integral, holomorphic functions, integral formulas of Cauchy and applications. The course also helps the development of problem solving skills. Students completing the course will gain knowledge on basic concepts and theorems of Multivariable Analysis. They will be able to apply the properties of these concepts. They will have a competence of evaluating readings in Analysis. Their positive attitude towards methods calculating limits will also increase significantly.

Linear Algebra (Lecture)/ ENMATNB1902 Linear Algebra (Seminar)

The lecture intends to introduce students to the world of linear algebra and to deepen their knowledge in this range of Mathematics. Students completing the course will have knowledge on basic linear algebraic concepts and theorems. They will be able to apply the properties of these concepts. They will have a competence of evaluating readings in linear algebra. Their positive attitude towards linear algebraic methods will also increase significantly.

ENMATNA1601 Differential Equations (Lecture)/ ENMATNA1602 Differential Equations (Seminar)

The lecture intends to introduce students to the world of differential equations. Students will learn to recognize and classify various types of ordinary differential equations. They will get used to thinking about and working with functions as "variables". At the end of the course, students will understand the qualitative nature of solutions to certain classes of differential equations, with emphasis on exponential growth, oscillations, and equilibrium solutions and learn to solve certain types of elementary differential equations analytically, with an emphasis on first order differential equations and higher order linear differential equations. At the end of course, students will have familiarity with questions and methods related to problems involving differential equations.

MSC APPLIED MATHEMATICS

The aim of the Applied Mathematics program is to train professionals who have well-grounded mathematical and informational knowledge in a theoretically and practical way. They are able to gain knowledge in industrial, commercial, agricultural, logistics, communication, and finance and computer science issues to be used for analysis, modeling, and finding a solution for them. Furthermore, the best ones are able to keep going on in doctoral-level training and deepen their skills and knowledge.

List of courses can be checked here.
Detailed course curricula can be requested by contacting us.

INSTITUTE OF GEOGRAPHY AND EARTH SCIENCES

The Institute of Geography and Earth Sciences of the University of Pécs was founded in 1998. It had been preceded by a unit for the teaching and research into geographical problems from the beginning of modern higher education in the city (1922). The department has developed into the largest institute of the Faculty of Sciences, and is also among the largest geographical workshops throughout Hungary. Due the evolution of the last decades, its profile has been extended significantly. In addition to Bachelor (BSc), Master (MSc) in Geography and teacher of geography (MA) training, it also offers BSc in Earth Sciences and both BSc and MSc in Environmental Sciences. The Doctoral School of Earth Sciences is also an integral part of the institution with various possibilities to precede post-graduate education in this field of research. Totally, there are about 350 Bachelor, 80 Master and 40 postgraduate students taking part in the institute's training programs. With offering some English-language courses, individual consultations and research possibilities, ERASMUS fellowship holders and other foreign students are especially welcome. The institute has a staff of more than 40 geographers, geologists, meteorologists and other professionals, and about 20 people in postgraduate and post doctorate education. The structure embraces six departments and three trans-disciplinary research centers. The departments are organized to cover the main, priority research fields of the institute.

BSC GEOGRAPHY

During this 6-semesters long Bachelor degree program students can learn and acquaint themselves with: the most important relations between geography and related disciplines; the analysis and adequately interpreting the problems and challenges of geographical space from a physical and human geographical approach; and the methodological fundamentals essential for the complex and integrated analysis of environmental spatial problems in classrooms, labs and fields. Applied geography specialization is offered for all international students and combines environmental geography, regional development, GIS and tourism. The program includes a six-week professional practice at self-selected private and public businesses and companies; however, the practice is also available at the university and IGES. By completing the professional practice, you will gain a broad range of practical and project management skills and knowledge to explain, analyze, interpret and execute various planning programs.

OVERVIEW OF POPULAR COURSES FOR BSC GEOGRAPHY

The following section gives an overview of important courses which are commonly picked up by our incoming exchange students. The complete list of these available courses can be found at the end of the guide.
However, you can go through the course curricula for BSc Geography for more details and see all the available courses here.

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ONFOL1-2501 Introduction to Geography

The aim of this course is to prepare first grade students for their university studies in geography. For this reason, during the course they learn the basic definitions, proper nomenclature and important topographical phrases of geography, ensuring their successful progress during their studies. At the end of the semester, students are able to understand the university level geography theories, compare and

evaluate the basics of physical and human geography. They are also aware of the most important geographical knowledge based on cartography and maps. The course has two components: the lectures and the seminars. With the lectures, students learn basic geographical theories, at seminars they practice and implement their basic knowledge.

AFOLNA0201 Introduction to Office-Related Applications

One of the main aims of this course is to refresh and systematize the existing computer-related knowledge of the students. The other is to enable them to perform text, data, table and presentation based works on an expected quality level. For this aim the course is separated into four larger modules, as: word processing, spreadsheet works and data visualization, presentation making and basic of operating systems.

AFOLNA3101 Road to Geography

The aim of the course is to give an introduction to our first year students about the structure, goal, offers and overall requirements of our bachelor programs. We present an overlook about the host institution, including the specialties and research focus of the departments. We also provide information about the higher education system in Hungary, and about the University of Pécs, as long as meets the interest and daily routine of the students. In the other hand, we draw a general picture about the geography as a discipline and as a profession. Students will be able to plan their study carefully, regarding their own interest and goals. They will have a proper knowledge about the career-possibilities internationally, and get motivated to join the research programs the institute offers. The course will help students to build up the complex spatial-sensible and complex attitude geographers usually own.

AFOLNA0101 Geomathematics and Geostatistics

This course aims to provide an understanding and knowledge of basic mathematical and statistical methods It also aims to provide a routine in the solution of the simpler mathematical and statistical problem related to the earth sciences knowledge. Upon successful completion of this course, students are able to apply basics mathematical and statistical tools and students are expected to be

able to solve simpler mathematical problems and accomplish statistical analysis at basics level.

(EN)AFOLNA0901 Introduction to Physics

Introduction to most important fields of physics at basic level.

AFOLNA0301 Social Studies for Geographers

This course aims to provide students with insight into the geography-related economic, demographic and sociological knowledge forming an important basis for the later interpretation and the geographical approach of their subjects. It also focuses to give insight into some research topics and methodological issues of social sciences, particularly economics and into regional/practical appearance and the cause-effect relationships of specific issues in social sciences. On successful completion of this course students are expected to be familiar with the epistemological and methodological foundations of social sciences, learn the basic skills of social research, basic concepts and theories necessary for understanding the problems and conflicts of our society, the main directions of the observed changes and the possibilities of interventions needed.

ONFOL1-0501 Meteorology and Climatology

This course aims to provide an understanding of the structure of the atmosphere, the physical processes which impact the weather and the climate. On successful completion of this course students are expected to understand the basic concepts about the atmosphere and they be familiar with phenomena occur in the atmosphere and are expected to be able to give explanation about the different atmospherical phenomena. They are able to involve critically in the debates about the climate changes. They are also able to apply their knowledge in the other fields of the earth sciences.

AFOLNA0701 Introduction to Astronomy

During the course, students will get to know the life and death of the Sun and other stars, and the elements and structure of Milky Way or other galaxies. They will become aware of the fundamentals of the astronomy: the history of the development of astronomy, the basics of the astronomical geography: like orientation and navigation star constellation. Coordinate systems; About the solar

system: planet Earth shape, size, and movements, terrestrial and Jovian planets characteristics, the origin and the development of Solar System, small celestial bodies, moons, asteroids, comets. The Sun as a star, basics about other stars, galaxies and the origin of the Universe.

ONFOL1-0402 Astronomical Geography and Cartography

The course develops the geographical skills and optimizes the capabilities of the orientation on the Earth surface and on the sky.

ONFOL1-0202 Introduction to Geology (Lecture)

This course introduces students to the basics of geology. Through a combination of lectures, labs, and field observations, lecturers will address topics ranging from mineral and rock identification to the origin of the continents, from geologic mapping to plate tectonics, and from erosion by rivers and glaciers to the history of life. The subject matter examined in the course covers the basics of geology and the objectives of the course are to provide students with a general understanding of this discipline. The course will focus on the chemistry and properties of minerals, the composition of igneous, sedimentary and metamorphic rocks and some of the earth processes responsible for rock and mineral formation. After the completion of the course, students will be better able how to observe and think about landscapes and other aspects of Earth; and will better understand the relevance of geology to their local geologic setting and the larger societal issues, like resources. They will also understand main geologic concepts and demonstrate an ability to apply geologic concepts.

AFOLNA0402 Introduction to Geology (Practice)

This course aims to provide an understanding of the visible properties of minerals, rocks, and fossils and of the geological map and its usage. During the course students will also apply applied geological concepts to illustrate their own measurements. On successful completion of this course students are expected to be able to identify the most common minerals, rocks and fossils and be able to use geological compass and able the illustrate the measured data.

AFOLNA1001 Introduction to GIS I. (Laboratory)

This course aims to provide an understanding of the basics of GIS and digital cartography. It also provides information about vector graphic tools of the Inkscape software and introduces technical steps of digital mapping. On successful completion of this course students are expected to be able to map geo data using the Inkscape software, to have an understanding of special terms and fundamentals of cartography, to be familiar with tools of vector graphics. They are also expected to be able to evaluate formerly prepared data for cartographic purposes and map physical and human geographic cases. They are able to understand, interpret and present spatial data and accomplish basic cartographic tasks using Inkscape.

AFOLNA1002 Introduction to GIS II. (Laboratory):

This course aims to provide an understanding of geoinformatics and Qgis software and provides quantitative discussion of basic nomenclature of geoinformatics and methods of data analysis. On successful completion of this course students are expected to be able to comprehend fundamental concepts of GIS, to have an understanding of GIS techniques, to be familiar with Qgis software and vector and master geo data processing. At the end of the course, students are expected to be able to evaluate georeferencing tool of Qgis, to be able to digitize vector data and present thematic maps. Students should be able to comprehend basic field survey techniques and able to collect data.

AFOLNA1301 Introduction to Scientific Work(Seminar)

The aim of this seminar is to prepare students to create their own scientific works. Step by step, the major elements of a research project, based on an example of a bachelor thesis will be introduced and each element will be practiced. Course topics will include the principles of the scientific investigation, basics of scientific ethics, and fundamentals of geographical methodology.

Students finishing this course will be able to recognize spatial-related scientific problems, to form relevant hypothesis or research questions. They have the skills to use databases, including publication databases and search engines (WoS, Scopus, Google Scholar) and also reference manager programs (Mendeley). They will be able to read and analyze scientific papers critically. They know some of the possible data sources of geographical researches, and have the basic competence to download and handle statistic data. With knowing their own skills and preferences,

they will be able to create a research plan for bachelor level. They will know the overall structure of the scientific works/papers, and are able to cite and create list of references.

(EN)AFOLNA1401 Geomorphology

On successful completion of this course students are acquainted with the landscape of the Earth, the laws, interactions, processes which influence geomorphic evolution and are familiar their dynamics. On successful completion of the course, students are expected to be able to: interpret the impact of physical geographical processes on the Earth's surface, recognize surface landforms on which the everyday activities of humanity takes place, reveal their origin and to evaluate environmental changes (climate change, human impact) from a geomorphological perspective. In addition to have an understanding of phenomena and interrelationships, students in teacher training become able to apply the logic of transmitting geomorphological information, its variability and the incorporation of geomorphological knowledge in teaching geography. At the end of the course, students in earth sciences become capable of finding topics of contact between geology and geomorphology, recognizing and explaining the impact of geological processes on the Earth's surface.

ONFOL1-2701 Historical Geology and Paleontology

The aim of the course is to present the history of planet Earth, namely introducing into the periods and milestones of Earth history, describing the major events and eras, periods, epochs, ages; introducing the dynamic Earth concept and its continuously changing model; understanding the mutual dependencies of bio- and geodiversities and presenting the best examples; Presenting the evolution of life on Earth and its major steps. Learning that the evolutionary steps are not accidental but always based on the previous developments and always understandable from the previous developments of life. Students undertaking this the course should know the geologic time scale, the major moments/milestones of evolution of life on Earth. They should know the basics and principals of stratigraphy, faciology, and evolutionary theory; they should know the methods of geological timing, the names and durations of geologic eons, periods and epochs (only for Cenozoic) and the appropriate nomenclature and terms and are able to use them in right context. Moreover, students are expected that they know the scientists and their

achievements who contributed the most to geology and palaeontology. Based on the acquired knowledge they should be able to understand and explain the development of Earth and its life forms and put the milestones of the development in right order and able to explain the evolution on Earth and recognize the turning points in evolution.
On the field they must be able to recognize and understand the litho- and biofacies. They will be competent enough to explain the Darwinian evolutionary theory and are able to cite examples from the fossil record. They know the micro- and macroevolution and able to cite examples for both from the fossil record. They are able to explain the big five extinction events of the Phanerozoic and their possible causes and are able to explain their impacts on the further developments of life in Earth.

ONFOL1-2601 Introduction to Pedology

This course format includes a mixture of lectures and hands-on activities in the lab and field. A 45- minute lecture and a 90-minute lab are scheduled per week. The lab is scheduled immediately after class in the late afternoon, and this entire block of time is utilized to sample soils at local field sites. Students will complete weekly lab and field-based assignments aimed at critical thinking about fundamental concepts in soil science. The general goal of the course is to provide an insight into the complex zonal knowledge on climate-vegetation-fauna-soil relations and soil management, which may generate a sound foundation for the subsequent global geographical studies. Students will also be expected to understand the basic models and nexus of soil science and pedology, and the role of soils on agriculture, crop production and global economy, as well as human welfare. Students who successfully complete the course will have an understanding of the methodological and theoretical basis of pedology and soil sciences. On successful completion of the course students are expected to be able to understand the basic processes in the pedosphere. They also will be able to collect relevant data to analyse and identify the role of soils, soil physical, chemical and biological processes on global systems, including human society and economy. They also will be able to critically evaluate and judge the problems and issues related to soil health, soil contamination and the general condition of soils as integral parts of the global ecosystems. They will also work independently on soil-related ecological and interdisciplinary problems and present them to decision makers and stakeholders.

They will be able to assess and comprehend data and literature related to soil science, pedology and ecosystem analysis.

ONFOL1-1301 Biogeography

The general goal of the course is to provide an insight into the complex zonal knowledge on climate-vegetation-fauna-soil relations, which may generate a sound foundation for the subsequent global geographical studies. Students will also be expected to understand the basic models and nexus of biogeography. Students who successfully complete the course will have an understanding of the methodological and theoretical basis of biogeography. On successful completion of the course students are expected to be able to understand the basic processes biogeography and ecology. They also will be able to collect relevant data to analyse and identify the role of ecosystems, biomes and biogenic factors on global systems, including human society and economy. They also will be able to critically evaluate and judge the problems and issues related to populations and communities. They will also comprehend independently ecological and supra-individual problems of the members of any ecosystem and present that to decision makers and stakeholders and they will be able to assess and comprehend data and literature related to biogeography and ecosystem analysis.

ONFOL1-0801 Hydrogeography

The course combines theoretical and experimental elements aimed at providing practical experience in the measurement and analysis of hydrological processes; methods of analysis applicable to solving practical problems related to environmental, land use, low input management problems. The main aims of the course are: to provide an understanding of the water cycle, to provide a quantitative discussion of water bodies, to apply water concepts to contemporary problems in water resources management This course familiarizes students with selected hydrological measurement and analytical techniques. Learning outcomes: Students are going obtain skills on different kind of investigation procedures.

ONFOL1-1101 Introduction to Human Geography

The aim of the course is to function as an introductory class, guiding the students into the world of geography and human geography, providing an insight into its structure, research topics, current issues, and methods. Its primary goal is to

introduce those new global disciplines, which are in sharp contrast with their former studies in public education. It is also among the missions to introduce the practical, applied aspect of human geography, in order to make practical sense of the introduced topics, issues. This course familiarizes students with selected fields of human geography, up-to-date global issues, and with its practical application in planning. At the time of course completion, students are going to obtain a basic overview and a useful vocabulary in the discussed disciplines of human geography.

ONFOL1-2801 Population, Place and Identity

The main objectives of the course are to help the students acquire basic knowledge and skills used in modern population geography and adjacent disciplines. Students undertaking this course will know the basic definitions and concepts of population geography and can will be able to use the basic terminology of the field. With the knowledge of the context of population geography, students will be able to collect data, analyse demographic datasets, understand and prepare age structure diagrams etc. They will also pursue to analyse and evaluate the major concepts of population geography; and be able to individually analyse, understand and represent basic demographic processes with the help of relevant data. They will also be able to prepare figures, presentations, briefings and supporting materials for decision makers.

AFOLNA3301 Urban Geography

The aim of the course is to give an introduction of the fundamental terms, concepts and models regarding the spatiality of human settlements. Students will have an overlook about the differences and similarities in the urbanisation of the different regions around the globe. In the seminars supporting the course students will improve their skills in the field of spatial analysis. They will be able to recognise analyse and interpret the spatial processes, patterns of functions, morphology and social groups in urban and in rural space. They will be able to use databases to support these analyses, classify and evaluate settlements. During the course the students' skills in individual reading and interpreting scientific papers will be improved, and also their abilities in team-based problem solving, presentation and scientific writing. The curricular goal of the course is to lay down fundamentals to the course of "Urban planning and development".

AFOLNA2201 Economic Geography

The aim of the course is to introduce the students into the world of economic geography, providing an insight into its structure, research topics, current issues and methods. Its primary goal is to present the structure and the historical background of nowadays economies.. After the successful completion of the course, students are expected to be able to understand many of the models of economic geography and its theory. It is also among the mission of this course to introduce the practical, applied aspect of economic geography, in order to make practical sense of the topics. The student will be able to collect data, make economic geographic analyses and understand the literature of the economic geography independently. During the course, students are going to obtain a basic overview and a useful knowledge in the discussed disciplines of economic geography. On successful completion of the course, they can make basic analysis of the economy and understand the relationship of its fields. Students are also expected to be able to comprehend the main trends and models of economy and compare the countries by many dimensions of their economic activity. Students will be able to present the economic structure of a country.

ONFOL1-2301 Physical Geography of Europe

On successful completion of this course students are acquainted with the landscape of Europe, the laws, interactions, processes which influence geologic, hydrologic, and climatological geomorphic evolution and become familiar their dynamics. Students are also expected to be able to: interpret the impact of physical geographical processes on the surface of Europe, recognize surface landforms on which the everyday activities of humanity take place, reveal their origin and to evaluate environmental changes (climate change, human impact) from a physical geographical perspective. In addition to having an understanding of phenomena and interrelationships, students in teacher training become able to apply the logic of transmitting geographical information, its variability and the incorporation of physical geographical knowledge in teaching geography. Students in earth sciences become capable of finding topics of contact between geology, hydrology, climatology and geomorphology, recognizing and explaining the impact of geological processes on the surface of the European continent.

ONFOL1-2401 Human Geography of Europe

A versatile analysis of the regions and countries of Europe is one of the most unique tasks in geography. The aim of the course is to give a thorough understanding on what is Europe. Its evolving concept, its political context, population characteristics, economic structures, ethno-national and cultural variety etc. The lectures are problem oriented and follow an up-to-date analysis of current issues besides the investigation of the deeply embedded regional characteristics. Seminars are attached to the lectures, which focus on oral and written presentations as well as readings and tests based on the material of the lectures and other sources. The students successfully completing the course: know the basic concepts of regional geography of Europe, possess the basic professional vocabulary in the field; are able to make data collection and analysis with the background knowledge of regional human geographical processes of Europe; are open to get to know the cultures of the difference nations of Europe and possesses basic information for this.

ONFOL1-1901 Physical Geography of the Carpathian Basin

Although this course focuses on the area of Hungary, it also looks at the whole Carpathian Basin. Students will develop depth, breadth, and integration of learning in physical geography.

Upon completion of the course on physical geography of Carpathian Basin students:

● will be able to be familiar with fundamental concepts on physical geography of Carpathian Basin and its principles at the level of macro regions;

● will be able to list and identify on blank maps core geographical names of Carpathian Basin;

● will have an understanding of core concepts around physical geography of Carpathian Basin.

Upon successful completion of this course students are expected to be able :

● to evaluate existing data in the context of physical geography;

● to analyse with a thematic guide physical macro regions of Carpathian Basin;

● to recognise individual types of landscapes and to assess their core properties;

● to analyse the impact of Quaternary climate variations on Carpathian Basin and to assess its role in the landscape development;
● to interpret and present the effects of society on natural factors. Upon completion of this course students
● will be able to identify diverse viewpoints, including different geo-disciplinal perspectives;
● will be able to identify scientific issues underlying global, national, local, and personal decisions and communicating positions that are scientifically and technologically informed.

ONFOL1-1801 Human Geography of Hungary

This course gives an insight into population and settlement geography of Hungary and the rapidly changing regional characteristics in the primary, secondary and tertiary sectors of economy. It also explains the factors behind Hungarian regional structure, through the basic characteristics of socio-economic system. It enables the students to understand the processes shaping the regional structure and encourages them to build relationships between physical and human geographical knowledge. It also informs students about the current social geographical problems so that they start analyzing the trends over the last few decades of regional economic development.
On successful completion of this course students are expected to be familiar with the economic historical antecedents of Hungary's regional processes, analyse trends over the last few decades and outline present and future directions of development trends, as well as the underlying correlations of the regional economic development after the turn of millennium and the subsequent period. Students will gain theoretical knowledge of physical and social geography, be able to collect, organize and interpret social and economic geography data, create presentations, pointing out the practical problems arising from the current social, economic and regional processes and their potential solutions as well; to be open to learn about Hungarian social and regional inequalities; and be able to (building on the social sciences and the general human and economic geographical knowledge) evaluate the country's role and place in the world realistically, and show the practical problems arising from the current economic and social trends and interpret and discuss special content related to the human geography of Hungary.

ONFOL1-0901 Field Trip

The purpose of the course is to synthesize the students' knowledge about physical geography, social geography, departmental and regional geography that they learned during four semesters. During the field trip, the students explore the physical and social geographical characteristics of the travelled landscape and settlements with the help of the teachers' lectures and they develop their geographical approach. The field trip serves the alignment of the student' knowledge with preparations, making of field diary and the ending report. The students who complete the course know the basic physical, social and regional geographical implications of the selected area. They know and use the characteristics of the geographical thinking and they use the terminology. They can see through the coherence of the physical, environmental, social and economic processes. The students are able to make field observations first with the guidance of the teachers then independently and they interpret the information obtained there. They are prepared to draw up logical and geographical statements about the observed phenomenon. During the field trip the eco-conscious approach of the student get a confirmation based on facts. The known phenomenon and processes make their commitment towards sustainability more pronounced and conscious. On the track of the strengthening of knowledge, they are able to raise their knowledge to a higher level and they are able to cooperate and be acquainted with the opinion of their teachers and teammates.

BSC EARTH SCIENCES

The IGES offers you a general and fundamental scientific knowledge to understand the mutually interrelated processes of Earth Sciences. You may familiarize yourself with a wide array of disciplines including the principles of geology, meteorology, astronomy, climatology and hydrology. And, you will learn the methods used in Earth Sciences, and you will make connections with laboratory microscopes, geology hammers in the field and computer models in the office. You may specialize yourself in the field of geology to explore the deeper correlations of subsurface dynamics and how recent landforms have evolved over geologic timescales. This is all done and conveyed to you by a young and dynamic team of faculty in a custom designed and student-specific training algorithm.

OVERVIEW OF POPULAR COURSES FOR BSC EARTH SCIENCES

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(EN)AFOTNA0301 Chemistry Basics I. (Lecture)

During the course, students get familiar with the most important fundamentals of material world, atoms and their electron structures. It also turns out how it is possible that basically unlimited number of compounds exists from the finite number of elements found in Earth. It is also highlighted that how the molecules may interact with each other and determine the physical and chemical properties of the given material.

ENAFOTNA0901 Physics Basics I. (Lecture)

The main aims of the course are understanding and applying the basic concepts and laws of general physics. The basics of classical mechanics and thermodynamics are also covered.

ENAFOTNA1201 Biology Basics (Lecture)

The primary purpose of the course is to provide students with an insight into all aspects of biology. In addition, we aim to highlight connections between the natural sciences.

ENAFOTNA0302 Chemistry Basics II. (Lecture)

During the course students get familiar with the physicochemical properties of biologically and environmentally important elements and those of their compounds.

ENAFOTNA0303 Chemistry Basics (Practice)

The aim of the laboratory is to get familiar with the most important tools and measuring methods in chemistry. The practice also focuses to prepare the students how to perform the most important calculations for preparing proper laboratory notes.

ENAFOTNA0902 Physics Basics II. (Lecture)

The course focuses on understanding and applying the basic concepts and laws of general physics. In this part, the basics of classical electromagnetism, optics, and atomic physics are covered.

ENAFOTNA0903 Physics Basics (Practice)

The students develop problem-solving skills to understand more the relations between the quantities in physics basics. They also develop task-solve skills and modeling at the end of the course.

ENAFOTNA0501 Meteorology (Lecture)

This lecture helps to understand the different weather phenomena and how the data are collected from the atmosphere to evolve more accurate weather forecast methods.

ENAFOTNA1401 Geomorphology

This course explains the students why is it important to know about the evolution of landforms on the Earth's surface and what are the major processes which shape them. It also addresses questions related to what kind of landforms are typical products of fluvial, eolian, glacial, karst, coastal etc. agents. Moreover, students will also understand that how does gravity contribute to the removal and accumulation of material and where can they find the most beautiful landforms on Earth.

AFOLNS-0201 Introduction to Remote Sensing (Practice)

The scope of the course is to present an overlook about the wide spectrum of the concept of remote sensing with a sort of practical exercises to deepen the knowledge. The students will get knowledge about the basic concepts of remote sensing,and will be able to use the specific terminology required, find and download optical and radar-based satellite images individually. They will also able to pre-process images and visualise them in certain software environment, to create composite maps and to interpret images visually. Basic concepts in remote sensing, it objectives and historical evolution. Physical features of electromagnetic radiation, interactions in the Earth’s atmosphere and on the surface. Passive and active methods in remote sensing. Managing archives, possibilities for downloading data. Creating composite images. Visual interpretations: specific questions of mapping water surfaces, settlements, vegetation, soils. utilizing satellite radar data in practice. Introduction to Google Earth Engine: basics, code editor, search, reclassification, filters other functions.

ENAFOTNA1301 Climatology

On successful completion of this course students are expected: to be familiar with the most important processes impact the climate. They are able to interpret the climate changes occurred in the past. to be able to understand the climate system and critically engaged in the debates about the interpretation of the climate change, they can couple the geological data to the history of the climate change.

ENAFOTNA0601 Mathematical methods in earth sciences

The aim of the course is to provid basic knowledge about math and statistics which is necessary to understand the physics and chemistry related to the earth sciences and to analyze the observed data from both laboratory a field observation.

ENAFOTNA1501 Introduction to hydrology and hydrogeology (Practice)

The subject belongs to the modules of the basic earth sciences, giving basic knowledge for the methodical and differential modules. This course familiarizes students with selected hydrogeological measurement and analytical techniques. During the course, students are going obtain skills on different kind of investigation procedures. The main aims of the course are to provide an understanding of the properties of subsurface water bodies and to provide a quantitative discussion of static and dynamic physical processes. The students will also apply subsurface water concepts to contemporary problems in water resources management.

ENAFOTNA3601 Field Work I.

This course will introduce students to the wonderful world of rocks. During the 4-5 field days we are going to visit four different places in the Mecsek Mountains. During whole 80 day long fieldwork (fieldtrip) the students are going to develop their field related skills. How to find and describe outcrops, and create a nice and neat fieldnotes. During the file days we will have the opportuntiy to examine sedimentary and igneous rock on the field.

ENAFOTNA1502 Introduction to Hydrology and Hydrogeology (Lecture)

In this 2 x 45-minute course we will investigate the major processes of surface and subsurface hydrology and focus on key processes of water dynamics and interactions among water bodies in the surface, vadose zone and the phreatic zone. We also investigate the impact of rock types properties on water chemistry and potential contamination of water bodies.

ENAFOTNA2601 Analytical Techniques in Geology (Practice)

Students will be introduced to the powerful analytical techniques used to characterize the composition, structure, and texture of Earth. Underlying physical/chemical principles, instrumentation, and application to real-world

problems is covered for each technique. Students complete hands-on analytical projects on scanning-electron microscopy, x-ray diffraction, and PSA microanalysis. Laboratory time outside of scheduled lecture hours will be required.

ENAFOTNA2801 Introduction to Hydrometeorology (Practice)
In this 3 x 45-minute course, we will investigate the relationship between hydrology and meteorology and focus on key processes including precipitation, evaporation, stream and ground water flow, flooding and water resources management. A large component of the course will include familiarizing the students with various measurement and monitoring techniques and different devices used for the measurement of meteorological variables. This course also focuses on data collection methods and data analysis using spreadsheets and graphic programs to monitor the temporal changes of hydrometeorological parameters.

ENAFOTNA3601 Field work I.
This course will introduce students to the wonderful world of rocks. During the 4-5 field days we are going to visit four different places in the Mecsek Mountains. During whole 80 day long fieldwork (fieldtrip) the students are going to develop their field related skills. How to find and describe outcrops, and create professional field notes. During the file days we will have the opportunity to examine sedimentary and igneous rock on the field.

Overlapping courses with BSc Geography:
(EN)AFOTNA0101 Mathematics Basics (Practice)
AFOLNA0201 Introduction to Office-related applications
ONFOL1-0202 Introduction to Geology (Lecture)
AFOLNA0402 Introduction to Geology (Practice)
AFOLNA0701 Introduction to Astronomy(Lecture)
ONFOL1-2601 Introduction to Pedology
AFOLNA1001 Introduction to GIS I.(Practice)
AFOLNA1002 Introduction to GIS II. (Practice)
ENAFOTNA1101 Physical geography of Hungary (Practice)
ONFOL1-2701 Historical geology and paleontology

MSC GEOGRAPHY

During this 4-semester Master degree program, our students will focus on GIS methods and remote sensing tool applied in surface geomorphology both in a classroom environment and in the field. They will have the opportunity to join in and participate in research and scientific projects run by IGES. The Institute has research collaborations with global companies like ESA and SARMap, and international relations with research groups from Switzerland, Poland, Spain, Slovenia, China and the US. These projects may provide internships for our students to experience the international atmosphere and scientific skills and knowledge. The master program provides a broad spectrum of geography and related disciplines and combines environmental geography, geomorphology and GIS for all international students. The program also includes a six-week professional practice at self-selected private and public businesses and companies, however, the practice is also available at the university and at the IGES. By completing the professional practice, the student will gain a broad range of practical and project management skills and knowledge to explain, analyse, interpret and execute various planning programs.

OVERVIEW OF POPULAR COURSES FOR MSC GEOGRAPHY

The following section gives an overview of important courses which are commonly picked up by our incoming exchange students. The complete list of these available courses can be found at the end of the guide.

However, you can go through the course curricula for MSc Geography for more details and see all the available courses here.

If you need more details regarding any specific course you can request it via an email.

ENMNGEO01/ MNFOTN0501 Modeling and Simulations in Geography

This course intends to provide an understanding of the principles of GIS modeling methods and of the fundamentals of elevation, hydrological, and statistical geo-located datasets. Upon successful completion of this course students are expected to be able to solve a simple modeling problem with pre-collected data. Students will be able to design a database, collect, manipulate and visualize environmental data. Moreover students will be able to solve simple GIS modeling problems with the help of computer programs (ArcGIS Pro, ArcMap) to accomplish GIS analysis.

ENMNGEO02/ MNGEO14 Geographical Applications of GIS

Geographical information system (GIS) software is now used in many areas of life: public administration, regional development, registration of infrastructural elements, nature and environment protection, flood protection. This course provides an understanding of the importance of GIS to social and urban development or to physical environment and provides a discussion of static and dynamic spatial processes, and problem management with GIS software. This course also helps students to apply concepts to contemporary spatial problems in geography. On successful completion of this course students are expected to have an understanding of contemporary spatial problems in geography and a problem management with GIS software. Subject-specific skills. They will be able to understand the spatial functions of GIS softwares, navigate between digital data models, understand the functions of the data acquisition methods and the spatial analysis.

ENMNGEO03/ MNGEOA03 Research Methodology

This course provides an understanding of complex, geographical researches and polishes skills both for social and nature sciences used in geographical researches. Students can apply new methods in their own research field.

On successful completion of this course students are expected to be able to develop and complete a thorough research proposal, analyse its structure, and the questions of organization and view geographic research question in a complex form. They will also be able to prepare a reference list of relevant publications of a freely chosen field according to the international standards. This course prepares them to plan, create and design a scientific poster, and figures and images to present research results and even analyse maps. Students will be familiar with a wide range

of research methods and will learn key principles of research design. Intellectual and methodological debates will be discussed in order to assist students to develop informed opinions and a critical appreciation for others' research. Students will be equipped with the knowledge and ability to undertake methodologically sound, original research projects and will develop a set of transferable workplace skills.

ENMNGEO04/ MNGEO09 Geomathematics

This course aims to provide basic knowledge about math and statistics which is necessary to understand the problems related to geographical sciences (social and physical geography) and to analyze the observed data from both laboratory and field observation. Students undertaking this course show know the basics methods of algebra, calculus and statistics. They should be able to apply their knowledge to understand the physical processes related to the physical geography, and to analyze data collected by different type of observations (for example: questionnaires, etc.). Moreover, they should be able to use computer programs (MAPLE, EXCEL, etc.) to accomplish mathematical and statistical analysis.

ENMNGEO05/ MNGEOA15 History and Schools of Geography Objectives:

This course provides an understanding of the development of the geographical principles and a qualitative discussion of historical processes. On successful completion of this course students are expected to be familiar with the changing approach to space and environment through history.

ENMNGEO06/ MNGEO19 Geographical Landscapes of the Carpathian Basin

This course provides an understanding of the physical landscapes of the Carpathian Basin. Moreover, students also develop an understanding of the character of socio-historical activities and natural processes in the development of cultural landscapes. With this knowledge they are able to interpret the mutual and multilateral relations of landscapes and regions in complex geographical systems. On successful completion of this course students are expected to be familiar with the major cultural landscapes of Carpatho-Pannonian Region. They are also expected to be able to compare landscapes of the Carpatho-Pannonian Region, and to understand cultural landscapes of the Pannonian Basin, and to present selected natural values and main protected mesoregional areas of the Carpathian Basin.

ENMNGEO07/ MNGEO20 Landscape Ecology and Landscape Evaluation

This course provides an understanding of the landscape, ecosystems and their importance for human society. It also introduces ecosystems services and their manifestations in the different landscape types. With the help of knowledge gained from this course, students can apply modern ecological concepts in natural resources management. On successful completion of this course students are expected to be able understand the operation of ecological processes in the landscape. Students will be capable of evaluation natural resources for various types of land utilization. They will be able to interpret landscape pattern and the related functions, interaction between natural and human processes and impacts on the landscape, to use different land evaluation techniques to solve practical tasks in natural resources management.

ENMNGEO08/ MNGEO21 Geographical Approaches of Regional Development

This course aims to provide an understanding of the geographical and spatial basis of regional development and even provides an insight of different theoretical spatial approaches. It will give some international examples of geographical approaches of regional development. On successful completion of this course students are expected to have an understanding of the different geographical approaches used in regional development both from a theoretical/historical and a geographical/spatial point of view. By the end of term, students are expected to be able to compare different approaches to regional development; understand the underlying spatial theories.

ENMNGEO09/ MNGEO22 Political Geography

It provides an understanding of the general concepts of political geography. Students will be able to apply political geography concepts to contemporary geopolitical problems of the world. On successful completion of this course students are expected to have an understanding of pattern of world political geography.

ENMNGEO10/ MNGEOA17 Space, Society and Sustainability

This course is an advanced level course in human geography. After students have learnt the fundamentals of several branches of geography, this course will inform them about some core questions of the connection between space and society. The course is organized about the abstract nature of space and the production of space. It provides a more complex understanding of geographical space, including the concept of space production and helps students to integrate the concept of sustainability into the discourse of space production. It also improves the students' skills in individual reading and processing papers in spatial sciences, including some classical reading of this field. On successful completion of this course, students are expected to be familiar with the leading concepts and terms of the contemporary human geography, including space production, place and space, region and city, (uneven) development, segregation, exclusion, polarisation, gentrification, globalisation, sustainable development, resilience and so on. They will be able to read, process and understand theoretical papers in spatial sciences, construct presentation and individual study about spatial phenomenons, based on wide-range of readings.

ENMNGEO11/ MNGEO81 Practical Applications of the GIS

The main pre-requisite for this course is that students should be familiar with the main fields of application and tools of geoinformatics and be aware of the main forms and possibilities of data collection so that they can build and use a database. In this course students should be able to compile a map using GIS tools and know the different possibilities of visualization and map editing. On successful completion of this course, students are expected to recognize the applicability of the GIS. The student will be familiar with many applications, tools and elements of the software environment of GIS. The student can capture data from a certain channel and sort it into a database. They can perform the main database operations. They are capable of performing visualization of maps and producing outputs that make it possible to publish maps on print or digitally. They will be informed of many geo-processing and spatial statistics tools. On successful completion of the course students are expected - to have an understanding of the main application of GIS - to be able to collect data, build a database - to comprehend of the uses of the database operations - to create and present a digital map in GIS - to be capable of making GIS analysis - to understand the main elements of spatial statistics,

analysis and it's GIS uses - to able to apply the GIS to the analysis of various problems.

ENMNGEO1201/ ONFOLAK1-0501 Regional Geography of the Continents I

On successful completion of this course, students are acquainted with the landscape of Asia and Australia, the laws, interactions, processes which influence geologic, hydrologic, and climatological geomorphic evolution and get familiar with their dynamics, as well as their basic human geographical features, including population dynamics, economic geography, political geography and their regional differences. On successful completion of the course students are expected to be able to: interpret the impact of physical geographical processes on the surface of the World, recognize surface landforms on which the everyday activities of humanity take place, reveal their origin and to evaluate environmental changes (climate change, human impact) from a physical geographical perspective. Moreover, they should be able to recognize and understand the basic social, political and economic place-based patterns, processes and problems of the continents. Students involved in the class become capable of finding topics of contact between geology, hydrology, climatology, geomorphology and social processes, recognizing and explaining the impact of geological processes on the surface of the continents, as well as the interaction between nature and society. On successful completion of the course students are expected to be able to assess and comprehend the physical characteristics of continents and socio-economic attributes of countries.

ENMNGEO1202/ ONFOLAK1-0502 Regional Geography of the Continents II

On successful completion of this course, students are acquainted with the landscape of the Americas and Africa, the laws, interactions, processes which influence geologic, hydrologic, and climatological geomorphic evolution and are familiar their dynamics, as well as their basic human geographical features, including population dynamics, economic geography, political geography and their regional differences. On successful completion of the course students are expected to be able to: – interpret the impact of physical geographical processes on the surface of the World, – recognize surface landforms on which the everyday activities of humanity take place, – reveal their origin and to evaluate environmental changes (climate change, human impact) from a physical

geographical perspective – recognize and understand the basic social, political and economic place-based patterns, processes and problems of the continents. Subject-specific skills: Students in earth sciences become capable of finding topics of contact between geology, hydrology, climatology, geomorphology and social processes, recognizing and explaining the impact of geological processes on the surface of the continents, as well as the interaction between nature and society. Subject-specific skills: On successful completion of the course students are expected to be able to critically engaged with the continents physical geographical characteristic, and social geographical features of the countries.

ENMNGEOS1-01 GIS Programming I

This course provides an understanding of the basic knowledge of programming. It equips students with an understanding of the role of computation in solving GIS problems.

On successful completion of this course students are expected to be able to solve a simple computation problem with branching, iteration and numerical operators in .NET and Python environment. Students will be able to solve simple GIS problems by writing and compiling programs and they will describe and apply object-oriented programming methodology.

ENMNGEOS1-02 GIS Database

It provides an understanding of the fundamentals of Database Management Systems so that students can apply database concepts to GIS problems in the fields of physical and human geography. On successful completion of this course students are expected build simple DBMS in MS Windows and Linux environment and are expected to get ordered data from widely used DBMSs. The student will be able to form SQL statements and queries upon completion of this course.

ENMNGEOS1-03 Applied Geomorphological Mapping

It provides an understanding of landform mapping to students so that they can use digital tools for designing and using geomorphic maps. They can also apply old and new trends in geo-morphological mapping. On successful completion of this course, students are expected to be familiar with the main problems and issues of detailed geomorphic mapping and be able to design and draw a geomorphic map with digital tools and to interpret and evaluate geomorphic maps.

ENMNGEOS1-04 Engineering and Anthropogenic Geomorphology

It provides an understanding of the anthropogenic landforms and geomorphic hazards and risk. This course acquaints students with the key issues in engineering way of landforms. On successful completion of this course, students are expected to have an understanding of engineering approaches of natural and anthropogenic landforms so that they gain familiarity and confidence with some of the key methods used to evaluate slope stability and an ability to interpret anthropogenic landforms.

ENMNGEOS1-05 Quaternary Research

This course helps students to develop an understanding of nature and impacts of Quaternary climate change. In this course, students acquire and develop scientific skills relating to studying Quaternary research and of the evolution of Quaternary landforms. On successful completion of this course students are expected to be familiar with Quaternary research issues and state-of-art results of the quaternary studies. Subject-specific skills: By the end of the course students should have gained: – the ability to describe and explain the Quaternary climate change and the ability to engage with some of the key debates in Quaternary science research, Students will also gain familiarity and confidence with some of the key archives and methods used to trace past climate and environmental change, – an appreciation of the wider significance of the Quaternary record.

ENMNGEOS1-06 Surface Modeling

This course aims to provide an understanding of the surface modeling techniques and model types and provides a quantitative discussion of phenomena-based model analysis and interpretation. Students will be able to apply model building and data analysis concepts to contemporary problems surface modeling Knowledge and on successful completion of this course students are expected to be able to build various kind of surface models; to have an understanding of basic terms and types of surface models; to be familiar with model analysis steps to able to extract landforms and interpret Earth surface processes.

ENMNGEOS1-07 3D Visualization

This course aims to provide an understanding of the 3D digital and spatial visualization and equips students with skills of 3D computer graphics and utilization of GIS software. On successful completion of this course students are expected to be familiar with using the 3D computer graphics and GIS software and students are expected to be able to: plan, create and modify 3D objects, make informative 3D maps and models.

ENMNGEOS1-08 Fieldwork in Geomorphology

The course will be based on field work and in the detailed study of sights of interest in relation to geomorphology. Through this training, students will develop observational and analytical skills allowing to better understand the inter-relationships between landscape elements. Specific training on geomorphological and geological description and analysis will be the basis of the course, which will serve as a complement to in-class geomorphological and in general physical geography classes. On successful completion of this course students are expected to have an understanding of the basic geomorphological processes that impact our environment, and specifically, students will have the ability to design and plan field work based on target objectives and to relate the different components of the landscape in order to understand their dynamics and allowing to propose genetical hypothesis for their formation. They will also be able to assess, comprehend and be critically engaged with all subdisciplines of physical geography and related phenomena that influence geomorphological development and evolution of a given area such as: - ability of using different types of maps, ability of developing detailed field-based mapping (geomorphological and geoecological), ability to develop hypothesis and and fieldwork methodologies to solve problems arising from geomorphological, geological, topographical knowledge in order to contribute to laboratory and office-based research.

ENMNGEOS1-09 Geomorphic Systems

This course aims to provide an understanding of the physical processes on the Earth's surface and offers a systematic and quantitative approach to dynamic physical processes. It presents the relevant parameters for the description of landforms and reveals contemporary problems (natural hazards) related to geomorphic processes Knowledge: On successful completion of this course

students are expected to be get an overview of the interactions between the physical processes operating on the Earth's surface. They will obtain an understanding of the importance of the individual agents in shaping the relief, in the evolution of landforms and the practical implications on human society. Students are expected to be able to assess the relative importance of drivers of change on the Earth's surface, to explain processes on the basis of General Systems theory. Students will also be able to judge the threats presented by natural hazards and the impacts of global climate change on the operation of geomorphic systems and will be familiar with the evaluation of geomorphic hazards and mitigation efforts.

ENMNGEOS1-10 Earth Observation

Scope of the course is to present an overlook about the wide spectrum of the concept of remote sensing with a sort of practical exercises to deepen the knowledge. The students will get knowledge about the basic concepts of remote sensing, are able to use the specific terminology required, find and download optical and radar-based satellite images individually. They are also able to preprocess images and visualize them in certain software environment, to create composite maps and to interpret images visually. On successful completion of the course students are expected to be able to:

- assess remote sensing products
- comprehend physical background of remote sensing
- compare different acquisition techniques
- understand main application of Earth Observation
- present basic processing steps of satellite data sets
- refer to the main EO missions

ENMNGEOS1-11 Stratigraphy

The main objectives of this course are to gain knowledge about the principles of stratigraphy and facies analysis and students get to practice using stratigraphic tools. On successful completion of this course students are expected to be able to read geological maps, cross-sections and seismics. More specifically, students will be able to properly classify and describe sedimentary rocks in outcrop and hand sample accurately measure and record stratigraphic sections in a field setting predict what types of sedimentary processes and depositional environments would

characterize a particular tectonic setting and what their stratigraphic signature would be interpret changes in a depositional environment through time (stratigraphic change) at a variety of spatial and temporal scales based on data from sedimentary rocks and successions. Students will also be capable to build a stratigraphic section construct cross sections, isopach maps, and preliminary basin models based on publicly available well log data.

ENMNGEOS1-12 Research Methods in Geomorphology

The main objective of the course is to develop skills in landform recognition and interpretation, topographic contouring, map navigation, topographic profiles, fundamental surveying skills with the alidade and total station, and mineral and rock resource calculation. All of these skills will be developed in the field environment as part of the laboratory component. The lecture will provide the theoretical underpinnings of the field methods used in the lab.

INSTITUTE OF PHYSICAL EDUCATION AND SPORT SCIENCES

The Institute of Sport Sciences and Physical Education has a long and rich tradition in both teaching and research. The physical educator teacher program was established in 1946 at the Institutes predecessor the Pedagogical College of Pécs. The Institute is one of the most influential educational organisation in the field of sport and physical education. The Institutions mission today is to provide Bachelor and Master programs in sport scientific related fields. The students can obtain Physical Educator Trainer or Sport Manager Bachelor Degree. In our Physical Educator-Trainer BSc both full and part time (correspondent) trainings are available. Apart from these programs, the Institution is also active as a higher-level vocational training centre. We are offering NTR (National Training Registry) programs in the fields of coaching, pedagogy training and further training, and we also contribute in many doctoral programs aiming for scientific renewal. The Institute of Physical Education and Sport Sciences is responsible for the operation of the Recreation Centre and the management of sporting life at the university.

BSC PHYSICAL TRAINING

The general aim of the program is to train students to become coaches. Trainers who gain a well-established theoretical and practical knowledge and skills to be able to plan and implement training sessions for junior players, youth and adult athletes, too. Coaches who become responsible to select athletes, improve and guide their personality and to enhance their performance. The curriculum is organized in five modules: team and individual sports, medical aspects of sport, social aspects of sport, sport sciences, and professional practice. Each module has approximately 5-10 subjects. Students participate in internships every semester. During the first three semesters as a visitor then later they are asked to conduct and lead workouts alongside with the teachers. The subjects are presented in lectures, seminars, practices, and laboratory work, too.

OVERIEW OF POPULAR COURSES FOR BSC PHYSICAL TRAINING

The following section gives an overview of important courses which are commonly picked up by our incoming exchange students. The complete list of these available courses can be found at the end of the guide.

However, you can go through the course curricula for BSc Physical Training for more details and see all the available courses here.

If you need more details regarding any specific course you can request it via an email.

ENAEDZN0101 Calisthenics I/ ENAEDZN0102 Calisthenics II.

This course trains sports professionals (coaches, trainers) who with the help of their practical and scientific knowledge are able to transfer values of physical culture embedded in callistenics in a high level, for all age groups through preventive, individualized and differentiated programmes by using the framework of calisthenics. These individuals are also prepared for professional advising to elaborate and conduct various skill development motoric programs so that they are

able to broaden the desired range of health status and to enhance fitness and with the help of their goal driven psycho-motoric and movement skills, they are able to apply their practical knowledge and high level teaching of movement skills (free exercises, natural exercises and through their theoretical and practical preparedness, are able to improve their knowledge related to callistenics in a creative way and publish their experiences and results .By possessing scientific knowledge, skills and attitudes, are capable to fulfill educational and developmental tasks in the subfield.

ENAEDZN0301 Outdoor Activities (recreational sports and games)

The aim of the course is to introduce as many forms of movement as possible for the students, which can be useful for sports programs, training conditions and recreational programs as well. Students learn practical knowledge that they can use in indoor and outdoor. They should be able to apply the acquired forms of movement by age groups and using the appropriate methodology indirectly.

ENAEDZN0401 Basics of individual sports (Basic of athletics, Swimming, Martial arts, Sport gymnastics)

The knowledge gained in this course is important in the many-sided sport preparation of young athletes. The basics of fundamental sports such as athletics, swimming, gymnastics, and combating will be learned. Students will be able to recognize the importance of performance development and injury prevention, and to incorporate methodological principles of these sports in to their own sport training programs.

ENAEDZN0702 Basics of Theory of Training II

Using the definitions, principles, and terminology discussed in the first part of the course, students will acquire the types of motor skills and the methodology of motor skill development. Students will be able to apply this knowledge in conditioning and workout planning for youth and adult athletes. The physiological background of motor skill development will also be discussed.

ENAEDZN0801 Biomechanics

In the course, students will be introduce to the interdisciplinary nature of biomechanics. Using previous knowledge in the fields of biology, anatomy, and

physiology they will understand the laws and mechanisms responsible for human movement. Acquiring two major topics: principles of mechanics, and the neuromechanical basis of muscle, students will understand the background of muscular force production and forces acting on human body during physical activity.

ENAEDZN0901 Human Biology

The lecture intends to introduce students to the characteristics of the human body. An overview is provided in the phenotypic variations of human kind, morphological features of the head/skull and body. The course gives an insight into the biological, anthropological differences between sexes, or before and after puberty. After completing the course, students will be able to describe factors determining a person's phenotype and will be capable of analyzing the different factors determining/ modifying a person's phenotype. It is a very important point in the practice of a PE teacher or trainer. Without the proper knowledge it is impossible to create a correct and effective training program for a pupil, adolescent or adult. Another core component of the course is determination of the factors of body structure and body composition and reviewing phases of human development, delineating the hormonal and structural changes of the body, especially around puberty.

ENAEDZN1001 Anatomy I.

The main aim of the course is to familiarize students with the structure and the build-up of the human body, the anatomy of the skeletal system and the muscular system, as well as the anatomical structure and main function of the circulatory system to acquire important relationships for further studies. Understanding the anatomy of the motion systems is essential for the building of physiological and sport physiological knowledge.

ENAEDZN1101 Accident Prevention, First aid and Sport Hygiene

The job of trainers and sports experts is an activity performed in the interest of humans' health. Sport activities, work-outs, competitions expose humans to a higher risk for accidents and injuries, therefore acquiring the most up-to-date first aid knowledge is of major importance for the staff working in these fields. The objective of the course is to teach first aid, accident prevention and sports health

knowledge to future trainers and sports experts. Students will be able to save lives via Basic Life Support (BLS) in sudden cardiac arrest and – as it is expected from trainers- they will be able to provide professional first aid while waiting for the paramedics to arrive.

ENAEDZN1201 Biochemistry

The subject is part of the "basic principles" module, and covers the core principles and topics of cellular metabolism in resting and exercise. Proper knowledge of biochemistry is required to understand the different biomolecules and the cellular biochemical pathways, and to further study the adaptation of these mechanisms during physical exercise. The course focuses the biomolecules oxidation and degradation processes as well.

ENAEDZN1301 Physiology, Sport Physiology I

The subject is part of the "basic principles" module, covers the fundamental principles of homeostasis in resting and exercise. Proper knowledge of human physiology is required to understand the different regulatory mechanisms, and to further study the adaptation of these systems during physical exercise. The first part of the course focuses blood and muscle movement in physiological terms.

ENAEDZN1501 Exercise Physiology

The lecture intends to introduce students to the possible measurements strategies of sport performance. An overview is provided in the delineation of test systems, performance measurement types and skills. The course gives an insight into the sport performance of different ages, differences between sexes, or before and after puberty. Upon successful course completion, students will be able to create a theoretical and practical knowledge of applied physiology and learn the measurement and computation of different physiological parameters in training situations or in a lab. They will also learn the practical background of fitness assessment and training strategies to improve performance. And analyze and understand data obtained from lab measurements.

ENAEDZN1801 Performance Testing

The aim of the course is to provide the students with comprehensive and systematic knowledge of motor skills, their age characteristics and different

methods. By acquiring the knowledge they have the ability to determine the level of motor skills of different age groups with laboratory measurements and field tests.

ENAEDZN2001 Introduction to Psychology I

At the end of this course students will understand the fundamental theories of psychology. Students will hear about the core mechanisms of learning, thinking perception, memory. Basic issues of developmental psychology and personality will also be covered.

ENAEDZN2101 Sport Psychology

The aim of this course is introducing the field of sport psychology by explaining the different theories about mental processes, which influence sport performance, including affective and cognitive systems. Beside the theories of sport psychology, the course will include some practical introduction to the methods widely used by sport psychologists. Learning outcomes: The students completing the course will have knowledge on basic terms and systems of sport psychology.

ENAEDZN2301 Methods of Physical Education and Inclusion

Students are familiar with the concepts of integration and inclusion. They learn about domestic and international integration practices. Students acquire knowledge of alternative and adapted modalities in physical education. They gain a picture of the features of inclusive pedagogy and learn the methods used in alternative schools, the specifics related to physical education.

ENAEDZN2501 Social Sciences I. (Philosophy)

The course gives an insight into the history of western philosophy and thinking, its key issues and characters and their works. The philosophical works discussed during the semester give an outlook on paradigm shifts concerning the connection between philosophical and scientific thinking.

ENAEDZN2701 Informatics

Acquisition of basic IT knowledge is essential for university studies and coaching, dissemination of IT culture and the transfer of practical skills are required for the use of computer tools. Beginning with high school students, they learn the basics

of IT and computer management: dissertation, topic presentation and internet search.

ENAEDZN2901 Sport Management

The course offers the opportunity for the student to gain information and understanding of the various practices and procedures associated with sport management. The course goal is to introduce the field of sport management to students and introduce the concepts, scope, and common practices in the sport management industry and to identify major issues in sport management and provide students with the intellectual tools to analyze those issues.

ENAEDZN3201 Programs of Youth Sports

Long term athlete development is a practical course for foreign students in sport coaching program. The main object is to describe the theory and practice of youth development and long term development sport programs.

ENTESV10 Kangoo

Students will learn the basic, and the most important exercises of this sport. This course will develop the basic and special physical and mental skills of the students. The principle of this sport is that the students have to get new stimulus training by training. It is meant to be performance a sort of the force, we can use in our common life.

ENTESV04 Crossfit

In this course, students will learn the basic, and the most important exercises of this sport. This course will develop the basic and special physical and mental skills of the students. The principle of this sport that the students have to get new stimulus training by training. It is meant to be performance a sort of the force, we can use in our common life.

ENTESV06 Yoga (Hatha yoga)/ ENTESV88 Yoga Meditation Flow

During yoga lessons, students will get to know the theoretical part and yoga practices. Nowadays hatha yoga is the most popular type of yoga in Europe. During practices the types of yoga asanas, the importance of balance exercises will be taught theoretically and practically, that will be useful for their everyday life

routine. The relaxation, the meditation, and the flow will be put in the focus of the basic of practice and in theory. The instructor will take the presentation of the flow, as a basic of the positive psychology. Students will get familiar with the different types of relaxation. We will discuss about their sport life, and about their experience of the flow. Teacher will make students certain about the importance of the practical part of yoga, during their sport life. The aim is to improve how to decrease the stress in the daily routine.

ENTESV08 Doping and Sports

The objective of this course is to encourage a critical understanding of doping. To achieve this goal, this course will rely on a multidisciplinary approach that allow you to see how different disciplines get into a single object, in different perspectives and often complementary ways. This approach will also allow us to appreciate the complexity of a subject like doping.

ENTESV13 Listening and Speaking

This advanced level class focuses on refining note taking strategies and learning to use these notes to outline, summarize, discuss and develop critical opinions about educational topics. The course has a strong focus on speaking skills needed for success in lecture classes and seminars. The objective of the course is to equip students with the language skills, which are necessary for discussions based on properly structured reasoning. The course aims to improve students' listening and note-taking skills, so they understand how spoken texts are constructed: identify key ideas and follow arguments, select and prioritize information, paraphrase, summarize and lay out notes. Students are exposed to lectures, presentations and other authentic input, which assist the development of their listening and speaking skills for more effective communication in study and professional situations. The course is designed to improve students' fluency through group discussions and debates as well as their persuasion skills while covering topics of discussion in various academic fields related to education.

ENTESV21 Sports Geography

The goal of the class is to acquaint students with the spatial and territorial issues of sport. The students will become aware of how branches of exercise have developed in different regions of the world and what factors have influenced its development.

At the same time, students will learn about the impact of the geographical environment (nature, economy, economy, infrastructure) on the development of the sports sector. What are the optimal conditions that have made it possible to overthrow new world peaks, to improve human abilities. Furthermore, on course completion, the students will be able to successfully apply spatial and territorial features in their future professions.

ENTESV15 Diagnostic Imaging in Sport Medicine

This course will provide a general overview on the currently applied imaging methods in sports medicine and will give you the opportunity to study about the most common sports injuries and the proper imaging method for detection and monitor healing.

ENAEDZN0501 Motor Development

The lecture intends to introduce students to the characteristics of the human development and the stages of the extra-uterine life. An overview is provided in the development of the brain, body structures and changes of human movement The course gives an insight into the biological progression and regression of human life and movement. Upon completion of the subject, students will be able to understand developmental stages of the human life, especially in the frame of motor functions as well as understand the special features of developmental stages in the frame of physical activity, trainability, especially in different school ages and adulthood.

ENAEDZN0601 Motor Learning Motor Control

The subject provides the student with an introduction to the human nervous and muscle systems. Motor learning study focuses on the behavioral, biomechanical, and neural bases of development, acquisition, and performance of functional movement skills. Motor control is concerned with issues of control and coordination of such fundamental motor activities as posture, locomotion, multi-joint reaching movement.

ENAEDZN0701 Basics of Theory of Training I.

The present course discusses the performance-oriented sport preparation possibilities in youth and adults. Knowing and using proper definitions and

terminology, students will be able to interpret and integrate the results in the field of exercise science. The intention in students to acquire new training methods and to creatively integrate the theory and practice will be developed. Students will learn the principles of sport preparation and physical adaptation.

ENAEDZN1002 Anatomy II

The lecture intends to introduce students to the world of human anatomy, particularly the structure of viscera and the nervous system. Besides acquiring the correct anatomical nomenclature students will learn the logic of anatomy, particularly that of the nervous system. These elements will form the basis of the physiology and sports physiology. Students completing the course will have knowledge on basic human anatomy and they will be able to they will have a competence of understanding the anatomical basis of sport movements and will be able to apply it in analysing kinematographic chains. Their positive attitude towards innovative methods in movement analysis will increase significantly.

ENAEDZN1302 Physiology, Sport Physiology II

Physiology II is the second part of a two-semester subject. This course provides the student with an introduction to each of the major physiological organ systems (cardiovascular, respiratory, renal, gastrointestinal and endocrine). This course will examine the integrated physiological response to exercise and the adaptation to special environments.

ENAEDZN1401 Dietetics

The lecture intends to introduce students to the characteristics of the human energy metabolism and energy balance. An overview is provided in the characteristics of general rules of healthy diet and nutrition. The course gives an insight into the biological background of diet planning and strategies of supplementation in sport. Learning outcomes include: understanding:

- metabolism, diet, food consumption, and the complex interaction of these,
- the basic principles of healthy diet and healthy food choice in life and elite sport
- the correlation between body structure, health and diet, sport performance and diet.

- the concept of diet/sport diet planning, the student is able to analyze and plan his/her own diet.

ENAEDZN1601 Prevention, Physical Therapy, Rehabilitation

In this course students will be familiarised with the theoretical and practical material of the physiotherapy course, with their specific tools, with particular regard to the training aspects of disease prevention and health rehabilitation. They will acquire the approach of prevention and rehabilitation and they will be able to use adaptive tasks during their work to avoid the use of contraindicated exercises. Finally the students should be able to use physiotherapy practice to promote rehabilitation and promote health preservation while having an adaptive approach.

ENAEDZN1902 Pedagogy II.(Public education)

The subject is aimed at learning the basics of school activity. In this course, the students understand the structure, context, content, basic documents and rules of the public education system and they acquire the roles related to the work of school educators. Moreover, they are facilitated to engage in the production of documents, planning, organization, administration. Innovation is enriched.

ENAEDZN2002 Introduction to Psychology II. (Developmental Psychology)

The course covers some significant theories of developmental psychology (psychosexual by Sigmund Freud, psychosocial by Erik H. Erikson, cognitive by Jean Piaget and Lev Vygotsky) as well as some basic issues like nature-nurture, the role of play, drawing and fairy tales in children's development and moral development. Based on the latest reference literature students are encouraged to reflect critically on the discussed issues.

ENAEDZN2201 Pedagogical Psychology

The course is an introduction to some basic issues of educational psychology (socialization, school readiness, motivation, supporting effective learning, learning disorders, deviance, supporting disabled children, supporting skilled children, what makes a teacher effective), as well as to point out the educational consequences of the various socialization strategies, the social environmental conditions and the organic or neurotic developmental disorders. The course is designed for future teachers who would like to understand the underlying psychological processes of

teaching and education. Based on the latest reference literature students are encouraged to reflect critically on the presented issues.

ENAEDZN2502 Social Sciences II. (Communication, Introduction to Sociology, Basic of Sport Law)

During the course the students acquire the most important theories and processes of modern communication in such relations which they can apply after their studies in the everyday job situations.

Sociology studies the laws of society with an objective methodology in order to find answers for its internal processes. Sport is a social phenomenon so its professionals need to understand the features and tendencies of the society. During the course the students acquire through theories of sociology and practical examples all those social knowledge which develop their social, cognitive and problem recognizing and solving abilities which are necessary for their later work in sports.

ENAEDZN2601 Communication in Sport

Effective sports communication is one of the most important abilities of the sports professionals and in order to be successful in the labour market – the high level theoretical and practical knowledge of the written, verbal and meta-communication knowledge is indispensable. The aim of the subject is that the students should acquire all those applied communicational knowledge whose application is indispensable during their later labour, since during the everyday tasks of sports we have to expect from a professional as a basic skill to be able to create and maintain the relations due to his/her activities. During the course the students will acquire and due to their tasks apply in a practice oriented way the (sports) communication methods and techniques of the 21st century and further on come to know the communication strategies of the market oriented sports of the present.

ENAEDZN2801 Introduction of Research Methods in Sport

The main goal of the course is to introduce the most important types of research, the main secondary and primary research methods. Discussing the role and importance of the hypothesis, the conceptualization and operationalization of the main definitions, dimensions and variables. Going through the methods of sampling and selection criteria, choosing the primary research method in order to

prove or deny the hypothesis – quantitative and qualitative methods – and the main rules of creating a survey or preparing an interview.

ENAEDZN3001 Event management

The aim of the subject is to acquaint students with the issues of organization of sporting events. The students will learn about the rules of play and competition in the context of sports event, the methodological steps of organizing and conducting competitions, and sport-specific organizing tasks. Students completing the course will have knowledge on organizing sport events in various sports. They will be able to independently design and organize sports competitions.

DOCTORAL SCHOOLS OF THE FACULTY OF SCIENCES

Doctoral School of Biology and Sportbiology

The Doctoral School of Biology and Sportbiology provides PhD studies in wide range fields of biology and sportbiology including genetics, microbiology, plant biology, ecology, regulatory biology, fitness, stress, sport and immune system. Excellently equipped laboratories are available in the biology departments and at the Szentágothai Research Center of UP, as well as at the Balaton Limnological Institute. By international contacts we give opportunity to our PhD students to mobility.

Doctoral School of Chemistry

The Doctoral School of Chemistry offers a 4-year postgraduate training focused on individual research supervised by one of the reserachers of the School. Applicants must hold an MSc degree in a natural science or a similar degree in science teaching. The curriculum offer postgraduate training and a PhD Degree in a wide range of fields in chemical sciences, Analytical Chemistry, Bioorganic Chemistry, Homogeneous Catalysis, Chemistry of Coordination Compounds, Electrochemistry, Synthetic Organic Chemistry, Theoretical Chemistry, Environmental Chemistry, Biochemistry, and Separation Science.

Doctoral School of Physics

The Doctoral School of Physics covers the fields that are the subjects of research in the Institute of Physics; namely, laser physics, including THz and X-ray laser research, nonlinear optics, generation of ultrashort laser pulses, laser based acceleration of particles, quantum optics, quantum informatics, theoretical atomic and molecular physics. World-leading research on high-energy THz pulses and their applications has a strong tradition at the Institute. There is a close collaboration between the doctoral school and three institutes of the Hungarian Academy of Sciences: both the Institute for Solid State Physics and the Institute for Particle and Nuclear Physics of the Wigner Research Center, and the Institute for Technical Physics and Material Science, further the Extreme Light Infrastructure (ELI-ALPS) institute in Szeged, as well as several international scientific

collaborators and local industrial partners. Students will be able to synthesize theoretical and empirical studies, conduct their own research, and present them both orally and in written form.

Doctoral School of Earth Sciences

The Doctoral School of Earth Sciences of the University of Pécs has evolved from the PhD programme „Spatial and Environmental Problems of Social and Economic Activities" launched in 1994, and became an accredited doctoral programme in 2001. Those participating in this scientific work can follow the programme in two basic forms: as fulltime university students or as correspondent students besides a full-time job. The actual scientific work and education in the doctoral school ramifies into different branches or disciplines. The selected topics, the fields of training, as well as the theoretical and applied research work also relate to these disciplines and their leading professors. The Doctoral School of Earth Sciences was accredited by the Hungarian Accreditation Committee on 22 January 2010.

OVERVIEW OF THE CITY- PÉCS, A MOSAIC OF THE PAST

There are very few cities which exist today which are capable of giving you the flash-backs of the complete historical time-line, but to much surprise, Pecs, one of the biggest city of Hungary is one of it. Located in the south-west of the country close to the Croatian border, it spans the region between flat land in the south and Mecsek mountains in the north. This culturally and historically rich city, formerly known as the *Sopianæ* presents you a fusion of different vibes, every time you visit the city. This city does is not only famous for tourists but it hosts a large number of international students community as well because of the oldest university of Hungary, University of Pécs which has been established here since the 14th century.

The most striking part of the city is the city centre, which has so much to offer that a single day trip is not enough for it. The city centre of Pécs is located within the remnants of the old city walls.The downtown comprises a number of city squares each lined with different monuments and structures. The most vibrant is the Széchenyi Square which is a classic city centre of Pecs and hosts a number of sight-worthy locations like hotels, pubs, cafés and the most famous remnant from the Ottoman Empire; The Mosque of Pasha Qasim which is now known as the Downtown Candlemass Church of the Blessed Virgin Mary and is the city's majestic symbol. Once you go inside you can have a reflection of how east meets west. Right infront of the church you can also find the Holy Trinity statue and a classical monument of a famous Hungarian leader, János Hunyadi. Inside the square you can also find one of the classical symbol of the city; the Zsolnay Kut, a fountain which gives water from four glazed heads. A number of other interesting buildings can also be found in the Széchenyi Square such as the Town's Hall and the meteorological station. This place is perfect for a romantic walk, a friend's day out, photography or even just sitting and abosrbing the most vivid sights of a classical European city, amidst local music.

Another square of the city brimming with classical structures is the Jókai Square. The most notable monuments here include the mellenium memorial monument which rests on a fountain. This place offers you a number of fine dining out options. There is a building from the nineteenth century which is called the

Elelphant House. There used to be a bakery in this building but now this building houses one of the most famous fine dining restaurants of Pecs, The Elefántos.

Continuing our walk towards another significant square in the downtown we have the Szent István Square. Here we find the biggest cathedral of Pecs in a neo-roman style; The Cathedral of Saint Apostles; Peter and Paul. Right infront of the church there is a big fountain and a very big park. The whole area is lined with flowers and give a very colorful and soothing appearance. There is also a world heritage site called the 'Cella Septichora' which is an Early Christian Mausoleum where you can find a number of tombs from the Roman era; all preserved in time in a modern visitor centre. Here another interesting thing for tourists is that there is a street which connects the Széchenyi Square with the Szent István Tér, called the Janus Pannonius Street. The street possesses a number of fences which are heavily laden with love locks. In Hungarian culture, it is a good omen if you engrave a lock with yours and your lover's name and lock it among the fences. "It locks your heart with each other" as the tradition says. The most peculiar yet extraordinary thing for tourists is that there is a mini sight-seeing train called the 'Dotto' with which you can travel around these famous places and listen to the commentary as well inside the train. It is highly recommended to take this ride if you are on a short trip because this will impart necessary knowledge about the important landmarks of the city, in a very short time and in a very safe and thrilling ride.

Hungary is a country which can never disappoint its tourists because it has everything to offer be it religious tourism, health tourism or heritage tourists to name a few. Pecs is a city laden with a number of museums so that your eyes could behold the beautiful work of artists like Victor Vasarely, Tivadar Csontváry Kosztka, Erzsébet Schaár and so on. These museums offer you a hint of the beautiful work of these artists, an eye candy for your instagram posts. Moreover all along the city centre you can find a number of antique shops which display a number of items including the Zsolnay polished ones that you will find it hard to resist what to buy for your family from this holiday trip.

As interesting the city centre might seem however, the other parts of the city are also full of vivid colors and nature. The northern part of Pecs has the Mecsek mountains. These variations in topography of the city means you can do a huge number of activities and there is a wealth of destinations to explore such as with

mountain biking and hiking. Every week a large number of group of hikers go for hiking at places such as the János-kilátó. In the Mecsek mountains you can also find a park dedicated for extreme sports called the Mecsextrem Park where you can indulge in a number of sports including the bungee jumping.At the peak of Mecsek mountains you can find a giant television tower, measuring 197 metres. This tower hosts a restaurant at 72 metres and an observation desk at 75 metres. In case you are looking for a romantic night and want to get a glimpse of the city lights and reminiscence the air travel nights, this restaurant is the perfect place for you. At the restaurant level you can also find exhibition of the native dinousaurs, the Komlosaurus. At the foot of the Mecsek hills is a most picturesque park called the Tettye Park, an important mining place and is now the remnant of a place from where stones were extracted to build the city of Pecs.Inside the park you can also find the remains of a sixteenth century villa. The most striking fact about Mecsek hills is that at the peak of Mecsek, Misina ,we have the Pécs Zoo & Aquarium-Terrarium lying at the top of the city. This small yet exquisite zoo not only displays the native Hungarian species of birds and animals but also exhibit a number of exotic species. Thus a trip to the Mecsek part of Pecs is not only limited to a romantic night out but also recommended for a family's day out.

At the western end of the Mecsek mountains lie a number of beautiful lakes which are worth visiting. The Pécs lake is a paradise for water sports enthusiasts. There is also the Lake Herman Ottó which is a fish and bird and otter reserve and a place where you can enjoy the calm serene surrounding so close to nature. Moreover, there is another beautifuk lake called the Abaliget. Apart from the lake, there is also one of the most famous touristic destination called the Abaliget Cave which has been classified as one of the hundred natural wonders of the world. The cave has a spa hosts a number of facilities and options for medical tourism. There is also a bat museum where you can find all the information related to bats because the cave has a large population of bats residing in it, hence you cannot help yourself imagining in a vampire's lair, a beautiful and an extraordinary experience at the same time.

Pécs from north to south is a complete package and promises not to disappoint its tourists. The most remarkable feature about the city is that it displays a mosaic of different historical timelines from medieval to modern era. This is a land which is filled with different people, different places, different foods and yet it has its own

unique place in the hearts of millions of tourists, who have been here and have never forgotten this striking city.

MISCELLENEOUS INFORMATION

ACCOMODATION

University of Pécs provides accommodation to its students in one of the 10 dormitories at a price of approximately 130 EUR per month.

These dormitories are fully furnished and offer you a wide range of faciltites including: internet access per room, study room, lounge, gym, bike storage, parking slots, cafeteria and student club.

However you also have an option to find a rented accommodation for yourself starting at a price of 250 EUR.

You can contact the following English speaking housing agencies for this purpose:

- http://studentservice.hu/apartments
- http://www.studenthousing.hu/fooldal&lang=en
- https://www.facebook.com/greathome.pecs/
- https://dh.hu/property-for-rent/flat-house/baranya-megye/pecs
- www.studenthousing.hu

For more information please visit this page.

STUDENT JOBS

If you need some additional support during your studies you can earn money on your own by working. Usually during studies, students have an option to carry out a student job but please be informed of how many hours of work are allowed to you based on your residence category in Hungary.

You can contact the following companies which usually provide student jobs:

- https://www.melodiak.hu/
- https://minddiak.hu/
- https://allas-pont.hu/

ERASMUS STUDY GUIDE - COURSE LIST 2023/24 ACADEMIC YEAR

	CODE	TITLE	COURSE TYPE	EXAM TYPE	SUGGESTED SEMESTER (HOUR-WEEK)/(HOUR-SEMESTER)						ECTS	INSTRUCTOR-IN-CHARGE	Study Program	Which Semester is announced?	Notes
Type of courses					1	2	3	4	5	6					
OBLIGATORY COURSES	KEMNA1101	General and Inorganic Chem. I. lect.	Lecture	EXAM	4						5	Kollár László	**Chemistry BSc**	Autumn Semester	
OBLIGATORY COURSES	KEMNA1102	General and Inorganic Chem. I. sem.	Seminar	Practice Grade	2						3	Horváth Attila	**Chemistry BSc**	Autumn Semester	
OBLIGATORY COURSES	KEMNA1103	General and Inorganic Chem. I. lab.	Practice	Practice Grade	4						5	Petőcz György	**Chemistry BSc**	Autumn Semester	
OBLIGATORY COURSES	KEMNA1104	General and Inorganic Chem. II. lect.	Lecture	EXAM		4					5	Kollár László	**Chemistry BSc**	Spring Semester	
OBLIGATORY COURSES	KEMNA1105	General and Inorganic Chem. II. sem.	Seminar	Practice Grade		2					3	Horváth Attila	**Chemistry BSc**	Spring Semester	
OBLIGATORY COURSES	KEMNA1106	General and Inorganic Chem. II. lab.	Practice	Practice Grade		5					6	Petőcz György	**Chemistry BSc**	Spring Semester	
OBLIGATORY COURSES	ENKEMNA1501	Organic Chem. I. lect.	lecture	Exam	4						5	Sár Cecília	**Chemistry BSc**	Autumn Semester	
OBLIGATORY COURSES	ENKEMNA1502	Organic Chem. I. Lab.	Practice	Practice Grade		4					5	Sár Cecília	**Chemistry BSc**	Spring Semester	
OBLIGATORY COURSES	ENKEMNA1503	Organic Chem. II. lect.	Lecture	Exam		4					5	Sár Cecília	**Chemistry BSc**	Spring Semester	
OBLIGATORY COURSES	ENKEMNA1504	Organic Chem. II. lab.	Practice	Practice Grade			4				5	Sár Cecília	**Chemistry BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZNA1401	Mechanics lecture	lecture	Exam			2				2	Dr. Szlachányi Kornél	**Physics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZNA1402	Mechanics practical course	Practice	Practice Grade			2				2	Dr. Szlachányi Kornél	**Physics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZNA2101	Computer technology I.	lecture	Exam	2						2	Dr. Almási Gábor	**Physics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZNA3001	Metrology lecture	lecture	Exam	2						2	Dr. Márton Zsuzsanna	**Physics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZNA3002	Metrology practical course	Practice	Practice Grade	1						1	Dr. Márton Zsuzsanna	**Physics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZNA0801	Electricity and magnetism lecture	lecture	Exam			2				2	Dr. Almási Gábor	**Physics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZNA0802	Electricity and magnetism seminar	Seminar	Practice Grade			2				2	Dr. Almási Gábor	**Physics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZNA1901	Quantum mechanics lecture	lecture	Exam					3		3	Dr. Gál Tamás	**Physics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZNA1902	Quantum mechanics practical course	Practice	Practice Grade					3		3	Dr. Gál Tamás	**Physics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENFIZN1001	Thermodynamics lecture	lecture	Exam		2					3	Dr. Pálfalvi László	**Physics BSc**	Spring Semester	
OBLIGATORY COURSES	ENFIZN1002	Thermodynamics practical course	Practice	Practice Grade		2					3	Dr. Pálfalvi László	**Physics BSc**	Spring Semester	
OBLIGATORY COURSES	ENFIZN1701	Electrodynamics lecture	lecture	Exam				2			3	Dr. Korpa Csaba	**Physics BSc**	Spring Semester	
OBLIGATORY COURSES	ENFIZN1702	Electrodynamics practical course	Practice	Practice Grade				2			3	Dr. Korpa Csaba	**Physics BSc**	Spring Semester	
OBLIGATORY COURSES	ENFIZN1101	Waves and optics lecture	lecture	Exam		2					3	Dr. Erostyák János	**Physics BSc**	Spring Semester	
OBLIGATORY COURSES	ENFIZN1102	Waves and optics practical course	Practice	Practice Grade		2					3	Dr. Erostyák János	**Physics BSc**	Spring Semester	
ELECTIVE COURSES	ENFIZNS3101	LabView basics	Practice	Practice Grade		2					3	Dr. Márton Zsuzsanna	**Physics BSc**	Spring Semester	
OBLIGATORY COURSES	ENFIZNS3201	Physics and electronics laboratory II.	Practice	Practice Grade				4			4	Dr. Buzády Andrea	**Physics BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN0101	Callisthenics I.	practice	Practice Grade	2						2	Prókai Judit	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN0301	Outdoor activities (recreational sports and games)	practice	Practice Grade					2		2	Cselkó Alexandra	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN0401	Basics of individual sports (Basic of athletics, Swimming, Martial arts, Sport gymnastics)	practice	Practice Grade			8				8	Dr. Váczi Márk	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN0702	Basics of Theory of Training II.	lecture	Exam			2				2	Dr. Radák Zsolt	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN0801	Biomechanics	lecture	Exam			2				2	Dr. Váczi Márk	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN0901	Human Biology	lecture	Exam	2						2	Dr. Gábrielné Wilhelm M	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN1001	Anatomy I.	lecture	Exam	2						2	Dr. Gábriel Róbert/Maye	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN1101	Accident prevention, First aid and Sport Hygiene	practice	Practice Grade	2						2	Dr. Tóth Ákos Levente	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN1201	Biochemistry	lecture	Exam	2						2	Csepregi Kristóf/László Sz	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN1301	Physiology , Sportphysiology I.	lecture	Exam			2				2	Dr. Atlasz Tamás	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN1501	Exercise Physiology	practice	Practice Grade					2		2	Dr. Gábrielné Wilhelm M	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN1801	Performance Testing	practice	Practice Grade					2		2	Gyebrovszki Ádám	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN1901	Pedagogy I. (Introduction to Pedagogy)	lecture	Exam	2						2	Dr. Dezső Renáta	**Physical Training BSc**	Autumn Semester	no course description
OBLIGATORY COURSES	ENAEDZN2001	Introduction to Psychology I.	lecture	Exam	2						2	Dr Bálint Ágnes	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN2101	Sportpsychology	lecture	Exam			2				2	Dr Paic Róbert	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN2301	Methods of Physical Education and Inclusion	Theory+practice						2+2		4	Dr. Csovcsics Erika/Katon	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN2501	Social Sciences I. (Phylosophy)	theory	Exam	2						2	Dr. Bertók Ilona Rózsa	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN2503	Social Sciences III. (Introduction to Sport Pedagogy and Sport Sociology)	theory	Exam			2+2				4	Dr. Németh Zsolt/Váczi M	**Physical Training BSc**	Autumn Semester	no course description
OBLIGATORY COURSES	ENAEDZN2701	Informatics	practice		2						2	Dr Farkas Gábor	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN2901	Sportmanagement	theory	Exam					2		2	Kajos Attila	**Physical Training BSc**	Autumn Semester	
OBLIGATORY COURSES	ENAEDZN3201	Programs of Youth Sports	practice	Practice Grade					2		2	Balázs Bence	**Physical Training BSc**	Autumn Semester	

ELECTIVE COURSES	ENTESV10	Kangoo	practice	Practice Grade	0+2		0+2				3	Szatmári Adrienn	**Physical Training BSc**	Autumn Semester	
ELECTIVE COURSES	ENTESV04	Crossfit	practice	Practice Grade	0+3		0+3				3	Szatmári Adrienn	**Physical Training BSc**	Autumn Semester	
ELECTIVE COURSES	ENTESV06	Yoga (Hatha yoga)	practice	Practice Grade	0+2	0+2	0+2				4	Gép Zsuzsanna	**Physical Training BSc**	Autumn Semester	
ELECTIVE COURSES	TTENTESV88	Yoga meditation flow	theory	exam							3	Gép Zsuzsanna	**Physical Training BSc**	Spring Semester	
ELECTIVE COURSES	ENTESV08	Doping and sports	theory	Practice Grade	0+2		0+2				3	Dr. Atlasz Tamas	**Physical Training BSc**	Autumn Semester	
ELECTIVE COURSES	ENTESV06	Yoga (Hatha yoga)	practice	Practice Grade	0+2	0+2	0+2				4	Gép Zsuzsanna	**Physical Training BSc**	Spring Semester	
ELECTIVE COURSES	ENTESV13	Listening and Speaking	Theory+practice								3	Zank Ildikó	**Physical Training BSc**	Spring Semester	

ELECTIVE COURSES	TTENTESV88	Yoga meditation flow	theory	exam							3	Gép Zsuzsanna	**Physical Training BSc**	Spring Semester	
ELECTIVE COURSES	ENTESV21	Sports Geography	Theory	exam							2	Dr Bánhidi Miklós	**Physical Training BSc**	Spring Semester	
ELECTIVE COURSES	ENTESV04	Crossfit	practice	Practice Grade	0+3		0+3				3	Szatmári Adrienn	**Physical Training BSc**	Spring Semester	
ELECTIVE COURSES	ENTESV15	Diagnostic Imiging in Sport Medicine	practice								3	Dr Orsi Gergő	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN0102	Callisthenics II.	practice	Practice Grade		2					2	Prókai Judit	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN0201	Physical Education Games	practice	Practice Grade				2			2	Cselkó Alexandra	**Physical Training BSc**	Spring Semester	no course description
OBLIGATORY COURSES	ENAEDZN0501	Motor development	theory	Exam						2	2	Dr. Gábrielné Wilhelm M	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN0601	Motor Learning Motor Control	theory	Exam						2	2	Dr. Atlasz Tamás	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN0701	Basics of Theory of Training I.	theory	Exam		2					2	Dr. Radák Zsolt	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN1002	Anatomy II.	oral	Exam		2					2	Dr. Gábriel Róbert/Maye	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN1302	Physiology, Sportphysiology II.	Theory+practice	Exam				2+2			4	Dr. Atlasz Tamás	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN1401	Dietetics	theory	Exam				2			2	Dr. Gábrielné Wilhelm M	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN1601	Prevention, Physical Therapy, Rehabilitation	Theory+practice	Practice Grade						2+2	4	Kovács Szabó Zsófia	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN1902	Pedagogy II.(Public education)	theory	Exam		2					2	Dr. Dezső Renáta	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN1903	Pedagogy III. (Theories of Education, Didactics)	Theory+practice	Exam				2+2			4	Dr Csovcsics Erika	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN2002	Introduction to Psychology II. (Developmental Psychology)	theory	Exam		2					2	Bálint Ágnes	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN2201	Pedagogical Psychology	theory	Exam				2			2	Dr Markó Éva	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN2502	Social Sciences II. (Communication, Introduction to Sociology, Basic of Sport Law)	theory	Exam		2+2+1					5	Dr. Marton Gergely	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN2601	Communication in Sport	practice	Practice Grade				2			2	Dr. Marton Gergely	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN2801	Introduction of Research methods in Sport	Theory+practice	Practice Grade		2+2					4	Dr Atlasz Tamás	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN3001	Event management	practice	Practice Grade				2			2	Dr Marton Gergely	**Physical Training BSc**	Spring Semester	
OBLIGATORY COURSES	ENAEDZN3101	Leadership and organization of sport camps	practice	Practice Grade						3	3	Balázs Bence	**Physical Training BSc**	Spring Semester	no course description
OBLIGATORY COURSES	ENPTIA0301	Elementary linear algebra	Lec+Prac/Coll.		2+2						4	Dr. Frigyik Béla András	**Computer Science BSc**	Autumn Semester	
Modular Elective course	ENTPIA0201	Calculus I	Lec+Prac/Coll.		2+2						5	Dr. Pap Margit	**Computer Science BSc**	Autumn Semester	
Modular Elective course	ENTPIA0202	Calculus II	Lec+Prac/Coll.			2+2					5				
Modular Elective course	ENPTIA4101	Analysis I	Lec+Prac/Coll.		3+2						5	Dr. Pap Margit	**Computer Science BSc**	Spring Semester	
Modular Elective course	ENPTIA4102	Analysis II	Lec+Prac/Coll.			3+2					5				
OBLIGATORY COURSES	ENTPIA0501	Probability and statistics	Lec+Prac/Coll.				2+1				3	Dr. Figyik B. András	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIB0701	Mathematical logics	Prac/Prac		0+2						3	Bodor András	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA0901	Numerical methods I	Lec+Prac/Prac.					2+2			5	Dr. Király Balázs	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIA0902	Numerical methods II	Prac/Prac.						0+2		2	Dr. Király Balázs	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA0601	Operations research	Prac/Prac						0+3		3	Dr. Király Balázs	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENMNAMA11	Discrete mathematics I	Lec+Prac/Coll.		2+2						5	Dr. Szabó Sándor	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA0102	Discrete mathematics II	Lec+Prac/Coll.			2+2					5	Dr. Szabó Sándor	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIA0801	Basics of computer science	Lec+Prac/Prac.				2+2				5	Dr. Jenei Sándor	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA1201	Elemetary programming	Prac/Prac.		0+4						4	Dr. Zentai Norbert	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA1601	Programming I	Prac/Prac.		0+4						5	Dr. Gimesi László	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA1602	Programming II	Prac/Prac.			0+4					5	Dr. Gimesi László	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIA1701	Compilers and assemblers	Prac/Prac.						0+2		2	Dr. Gimesi László	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA1001	Algorithms, data structures	Lec+Prac/Coll.			2+2					5	Dr. Jenei Sándor	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIB1101	Formal languages and automata	Lec+Prac/Prac		2+2						5	Dr. Jenei Sándor	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA2301	Distributed systems, parallel programming	Prac/Prac						0+3		3	Bodor András	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA1401	Relational databases	Lec+Prac/Coll.				2+2				5	Dr. Laczkó József	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA1301	Methodology of programming I	Lec+Prac/Prac.			2+2					5	Dr. Laczkó József	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIA1501	System engineering	Lec+Prac/Coll.				2+2				5	Dr. Pauler Gábor	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIA1801	Professional communication	Lec+Prac/Prac.					1+2			3	Dr. Bugya Titusz	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIA2101	Operating systems	Lec+Prac/Coll.							2+2	5	Dr Almási Gábor	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIA1901	Computer architectures	Lec/Coll.		2+0						2	Dr. Almási Gábor	**Computer Science BSc**	Autumn Semester	
OBLIGATORY COURSES	ENPTIB2001	Computer networks	Lec/Coll.			4+0					5	Dr. Mechler Mátyás Illés	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIA2201	Information and data security	Lec/Coll.							3+0	3	Dr. Hatvani Zsolt Ákos	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIB2401	Operation of IT systems	Prac/Prac.					0+2			3	Horváth Zoltán	**Computer Science BSc**	Spring Semester	
OBLIGATORY COURSES	ENPTIB4001	Control technology	Lec+Prac/Coll.							1+2	5	Dr. Laczkó József	**Computer Science BSc**	Spring Semester	no course description

OBLIGATORY COURSES	ENMATNA1202	Analysis in Several Variables sem.	Seminar	Seminar Grade			2				**2**	Dr. Pap Margit	**Mathematics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENMATNA1301	Abstract Algebra	Lecture	EXAM			2				**2**	Dr. Tóth László	**Mathematics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENMATNA1302	Abstract Algebra sem.	Seminar	Seminar Grade			2				**2**	Dr. Tóth László	**Mathematics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENMATNA0903	Geometry 2	Lecture	EXAM			2				**2**	Dr. Ruff János	**Mathematics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENMATNA0904	Geometry 2 sem.	Seminar	Seminar Grade			2				**2**	Dr. Ruff János	**Mathematics BSc**	Autumn Semester	
OBLIGATORY COURSES	ENMATNA1401	Probability Theory ans Statistics	Lecture	EXAM				3			**3**	Dr. Frigyik András	**Mathematics BSc**	Spring Semester	
OBLIGATORY COURSES	ENMATNA1402	Probability Theory ans Statistics sem.	Seminar	Seminar Grade				3			**3**	Dr. Frigyik András	**Mathematics BSc**	Spring Semester	
OBLIGATORY COURSES	ENMATNA1701	Complex functions	Lecture	EXAM				2			**2**	Dr. Pap Margit	**Mathematics BSc**	Spring Semester	
OBLIGATORY COURSES	ENMATNA1702	Complex functions sem.	Seminar	Seminar Grade				2			**2**	Dr. Pap Margit	**Mathematics BSc**	Spring Semester	
OBLIGATORY COURSES	ENMATNA1901	Linear Algebra	Lecture	EXAM				2			**3**	Dr. Simon Ilona	**Mathematics BSc**	Spring Semester	
OBLIGATORY COURSES	ENMATNB1902	Linear Algebra sem.	Seminar	Seminar Grade				1			**2**	Dr. Simon Ilona	**Mathematics BSc**	Spring Semester	
OBLIGATORY COURSES	ENMATNA1601	Differential Equations	Lecture	EXAM				2			**3**	Dr. Eisner Tímea	**Mathematics BSc**	Spring Semester	
OBLIGATORY COURSES	ENMATNA1602	Differential Equations sem.	Seminar	Seminar Grade				2			**2**	Dr. Eisner Tímea	**Mathematics BSc**	Spring Semester	

	ENAFOTNA0101	Mathematics basics practice	practice	Practice grade	2/26						2	Tamás Gál	**Earth Sciences Bsc**	Autumn semester	no course description
	AFOLNA0201	Introduction to Office-related applications	lab	Practice grade	3/39						3	Titusz Bugya	**Earth Sciences Bsc**	Autumn semester	
	ONFOL1-0202	Introduction to Geology lecture	lecture	Exam	2/26						3	János Kovács	**Earth Sciences Bsc**	Autumn semester	
	AFOLNA0402	Introduction to Geology practice	lab	Practice grade	2/26						2	Amadé Halász	**Earth Sciences Bsc**	Autumn semester	
	ENAFOTNA0301	Chemistry basics I. lecture	lecture	Exam	2/26						2	Attila Horváth	**Earth Sciences Bsc**	Autumn semester	
	ENAFOTNA0901	Physics basics I. lecture	lecture	Exam	2/26						2	János Erostyák	**Earth Sciences Bsc**	Autumn semester	
	ENAFOTNA1201	Biology basics lecture	lecture	Exam	2/26						2	Jenő Purger	**Earth Sciences Bsc**	Autumn semester	
	ENAFOTNA0302	Chemistry basics II. lecture	lecture	Exam		2/26					2	Attila Horváth	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA0303	Chemistry basics practice	lab	Practice grade		2/26					2	Attila Horváth	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA0902	Physics basics II. lecture	lecture	Exam		2/26					2	János Erostyák	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA0903	Physics basics practice	lab	Practice grade		2/26					2	János Erostyák	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA0501	Meteorology lecture	lecture	Exam	2/26						3	István Geresdi	**Earth Sciences Bsc**	Autumn semester	
	AFOLNA0701	Introduction to Astronomy lecture	lecture	Exam	2/26						2	Péter Gyenizse	**Earth Sciences Bsc**	Autumn semester	
	ONFOL1-2601	Introduction to Pedology	complex	Practice grade	3/47						4	Szabolcs Czigány	**Earth Sciences Bsc**	Autumn semester	
	AFOLNA1001	Introduction to GIS I.	complex	Practice grade	3/39						4	István Péter Kovács	**Earth Sciences Bsc**	Autumn semester	
	ENAFOTNA1401	Geomorphology	complex	Practice grade		3/47					4	Dénes Lóczy	**Earth Sciences Bsc**	Spring semester	
	ONFOL1-2701	Historical geology and paleontology lecture	lecture	Exam		3/39					3	László Bujtor	**Earth Sciences Bsc**	Spring semester	
	AFOLNS-0201	Introduction Remote sensing	practice	Practice grade		2/26					3	Levente Ronczyk	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA1301	Climatology	lecture	Exam		2/26					3	István Geresdi	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA0601	Mathematical methods in earth sciences	lab	Practice grade		4/52					5	István Geresdi	**Earth Sciences Bsc**	Spring semester	
	AFOLNA1002	Introduction to GIS II. practice	lab	Practice grade		3/39					4	István Péter Kovács	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA1501	Introduction to hydrology and hydrogeology practi	lab	Practice grade			3/39				4	József Dezső	**Earth Sciences Bsc**	Autumn semester	
	ENAFOTNA1502	Introduction to hydrology and hydrogeology lectur	lecture	Exam			2/26				3	Attila Kovács	**Earth Sciences Bsc**	Autumn semester	
	ENAFOTNA3601	Field work I.	field practice	Practice grade			/40				5	Amadé Halász	**Earth Sciences Bsc**	Autumn semester	
	ENAFOTNA2401	Field measurements, documentation, geological m	practice	Practice grade				2/26			3	Amadé Halász	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA2601	Analytical techniques in geology practice	lab	Practice grade				2/26			3	János Kovács	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA2801	Introduction to hydrometeorology practice	practice	Practice grade				3/39			3	Szabolcs Czigány	**Earth Sciences Bsc**	Spring semester	
	ENAFOTNA1101	Physical geography of Hungary practice	practice	Practice grade				2/26			3	Szabolcs Ákos Fábián	**Earth Sciences Bsc**	Spring semester	
	ONFOL1-2501	Introduction to Geography	complex	Exam	3/39						4	dr. Nagyváradi László	**Geography Bcs**	Autumn semester	
	AFOLNA0201	Introduction to Office-related applications	lab	Practice grade	3/39						3	dr. Bugya Titusz	**Geography Bcs**	Autumn semester	
	AFOLNA3101	Road to Geography	lecture	Exam	1/13						1	dr. Pirisi Gábor	**Geography Bcs**	Autumn semester	
	AFOLNA0101	Geomathematics and Geostatistics	practice	Practice grade			3/39				4	dr. Geresdi István	**Geography Bcs**	Autumn semester	
	ENAFOLNA0901	Introduction to Physics	lecture	Exam		2/26					2	dr. Erostyák János	**Geography Bcs**	Spring semester	
	AFOLNA0301	Social Studies for Geographers	complex	Exam	4/52						6	dr. Tésits Róbert	**Geography Bcs**	Autumn semester	
	ONFOL1-0501	Meteorology and Climatology	lecture	Exam		3/39					4	dr. Geresdi István	**Geography Bcs**	Spring semester	
	AFOLNA0701	Introduction to Astronomy	lecture	Exam	2/26						2	dr. Gyenizse Péter	**Geography Bcs**	Autumn semester	
	ONFOL1-0402	Astronomical Geography and Cartography	practice	Practice grade		3/26					3	dr. Nagyváradi László	**Geography Bcs**	Spring semester	
	ONFOL1-0202	Introduction to Geology	lecture	Exam	2/26						3	dr. Kovács János	**Geography Bcs**	Autumn semester	
	AFOLNA0402	Introduction to Geology	practice	Practice grade	2/26						2	dr. Halász Amadé	**Geography Bcs**	Autumn semester	
	AFOLNA1001	Introduction to GIS I.	lab	Practice grade	3/45						4	dr. Kovács István Péter	**Geography Bcs**	Autumn semester	
	AFOLNA1002	Introduction to GIS II.	lab	Practice grade		3/39					4	dr. Kovács István Péter	**Geography Bcs**	Spring semester	
	AFOLNA1301	Introduction to Scientific Work	seminar	Practice grade			2/26				3	dr. Pirisi Gábor	**Geography Bcs**	Autumn semester	
	ENAFOLNA1401	Geomorphology	complex	Exam		3/47					4	dr. Varga Gábor	**Geography Bcs**	Spring semester	
	ONFOL1-2701	Historical Geology and Paleontology	lecture	Exam		3/39					3	dr. Bujtor László	**Geography Bcs**	Spring semester	
	ONFOL1-2601	Introduction to Pedology	practice	Practice grade			3/43				4	dr. Czigány Szabolcs	**Geography Bcs**	Autumn semester	
	ONFOL1-1301	Biogeography	lecture	Exam			2/28				3	dr. Czigány Szabolcs	**Geography Bcs**	Autumn semester	
	ONFOL1-0801	Hydrogeography	practice	Practice grade				3/43			4	dr. Dezső József	**Geography Bcs**	Spring semester	
	ONFOL1-1101	Introduction to Human Geography	lecture	Exam	2/26						2	dr. Trócsányi András	**Geography Bcs**	Autumn semester	
	ONFOL1-2801	Population, Place and Identity	complex	Exam		4/52					6	dr. Pap Norbert	**Geography Bcs**	Spring semester	

	AFOLNA3301	Urban Geography	complex	Exam			4/52				6	dr. Pirisi Gábor	**Geography Bcs**	Autumn semester	
	AFOLNA2201	Economic Geography	complex	Exam			4/52				6	dr. Trócsányi András	**Geography Bcs**	Autumn semester	
	ONFOL1-2301	Physical Geography of Europe	complex	Exam					4/52		6	dr. Gyuricza László	**Geography Bcs**	Autumn semester	
	ONFOL1-2401	Human Geography of Europe	complex	Exam					4/52		6	dr. Reményi Péter	**Geography Bcs**	Autumn semester	
	ONFOL1-1901	Physical Geography of the Carpathian Basin	complex	Exam				4/52			6	dr. Fábián Szabolcs Ákos	**Geography Bcs**	Spring semester	
	ONFOL1-1801	Human Geography of Hungary	complex	Exam				4/52			6	dr. Tésits Róbert	**Geography Bcs**	Spring semester	
	ONFOL1-0901	Field Trip	practice	Practice grade				0/24			3	dr. Szabó Géza	**Geography Bcs**	Spring semester	
	ENMNGEO01/MNFOTN0501	Modelling and simulations in Geography	Practice	Practice grade		2/36					3	dr. Halmai Ákos	**Geography Msc**	Spring semester	
	ENMNGEO02/MNGEO14	Geographical Applications of GIS	Lecture	Exam	2/36						2	dr. Gyenizse Péter	**Geography Msc**	Autumn semester	
	ENMNGEO03/MNGEOA03	Research Methodology	Seminar	Practice grade	2/36						2	dr. Trócsányi András	**Geography Msc**	Autumn semester	
	ENMNGEO04/MNGEO09	Geomathematics	Practice	Practice grade			2/36				3	dr. Sarkadi Noémi	**Geography Msc**	Autumn semester	
	ENMNGEO05/MNGEOA15	History and Schools of Geography	Lecture	Exam	2/36						2	dr. Pap Norbert	**Geography Msc**	Autumn semester	
	ENMNGEO06/MNGEO19	Geographical Landscapes of the Carpathian Basin	Lecture	Exam	2/36						2	dr. Fábián Szabolcs Ákos	**Geography Msc**	Autumn semester	
	ENMNGEO07/MNGEO20	Landscape Ecology and Landscape Evaluation	Complex	Exam	3/39						4	dr. Lóczy Dénes	**Geography Msc**	Autumn semester	
	ENMNGEO08/MNGEO21	Geographical Approaches of Regional Developmen	Seminar	Practice grade	2/36						2	dr. Reményi Péter	**Geography Msc**	Autumn semester	
	ENMNGEO09/MNGEO22	Political Geography	Complex	Exam	4/52						4	dr. Pap Norbert	**Geography Msc**	Autumn semester	
	ENMNGEO10/MNGEOA17	Space, Society and Sustainability	Lecture	Exam		2/36					2	dr. Pirisi Gábor	**Geography Msc**	Spring semester	
	ENMNGEO11/MNGEO81	Practical Applications of the GIS	Lab	Practice grade		2/36					3	dr. Bugya Titusz	**Geography Msc**	Spring semester	
	ENMNGEO1201/ONFOLAK1-0501	Regional Geography of the Continents I.	Complex	Exam	4/52						6	dr. Wilhelm Zoltán	**Geography Msc**	Autumn semester	
	ENMNGEO1202/ONFOLAK1-0502	Regional Geography of the Continents II.	Complex	Exam		4/52					6	dr. Nagyváradi László	**Geography Msc**	Spring semester	
	ENMNGEOS1-01	GIS Programming I.	Lab	Practice grade		2/36					3	dr. Halmai Ákos	**Geography Msc**	Spring semester	
	ENMNGEOS1-02	GIS Database Modelling	Lab	Practice grade			2/36				3	dr. Bugya Titusz	**Geography Msc**	Autumn semester	
	ENMNGEOS1-03	Applied Geomorphological Mapping	Practice	Practice grade			2/36				4	dr. Fábián Szabolcs Ákos	**Geography Msc**	Autumn semester	
	ENMNGEOS1-04	Engineering and Anthropogenic Geomorphology	Practice	Practice grade		2/36					3	dr. Fábián Szabolcs Ákos	**Geography Msc**	Spring semester	
	ENMNGEOS1-05	Quaternary Research	Lecture	Exam			2/36				3	dr. Fábián Szabolcs Ákos	**Geography Msc**	Autumn semester	
	ENMNGEOS1-06	Surface Modelling	Practice	Practice grade				2/36			3	dr. Kovács István Péter	**Geography Msc**	Announced only from 2022 spring!	
	ENMNGEOS1-07	3D Visualization	Lecture	Exam				2/36			2	dr. Gyenizse Péter	**Geography Msc**	Announced only from 2022 spring!	
	ENMNGEOS1-08	Fieldwork in Geomorphology	Practice	Practice grade		0/13					4	dr. Czigány Szabolcs	**Geography Msc**	Spring semester	
	ENMNGEOS1-09	Geomorphic Systems	Lecture	Exam				2/39			4	dr. Lóczy Dénes	**Geography Msc**	Announced only from 2022 spring!	
	ENMNGEOS1-10	Earth Observation	Practice	Practice grade				2/36			3	dr. Ronczyk Levente	**Geography Msc**	Announced only from 2022 spring!	
	ENMNGEOS1-11	Stratigraphy	Lecture	Exam		2/36					3	dr. Budai Tamás	**Geography Msc**	Spring semester	
	ENMNGEOS1-12	Research Methods in Geomorphology	Practice	Practice grade			2/36				3	dr. Kovács János	**Geography Msc**	Autumn semester	
OBLIGATORY COURSES	ENBIOB0101	Mathematics	Lecture	Exam	2						2	Dr Simon Ilona	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB0102	Mathematics	Practice	Practice grade	2						3	Dr Simon Ilona	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB0301	Fundamental Physics	Lecture	Exam	2						2	Dr Erostyák János	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB0201	Fundamental Chemistry I	Lecture	Exam	2						2	Dr Horváth Attila	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB3001	Biological Laboratory Fundamentals	practice	Practice grade	2						3	Dr Kerepesi Ildikó	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB1103	Comparative Anatomy I lecture	Lecture	Exam	2						2	Dr Molnár László	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB1104	Comparative Anatomy I laboratory	practice	Practice grade	3						4	Dr Pollák Edit	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB2101	Plant Anatomy and Morphology lecture	Lecture	Exam	3						3	Dr Stranczinger Szilvia	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB2102	Plant Anatomy and Morphology laboratory	Practice	Practice grade	3						4	Dr Stranczinger Szilvia	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB1301	Cell Biology lecture	Lecture	Exam	2						2	Dr Molnár László	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB1302	Cell Biology laboratory	Practice	Practice grade	2						3	Dr Molnár László	**Biology BSc**	Autumn Semester	
OBLIGATORY COURSES	ENBIOB0401/ENBION0501	Organic Chemistry lecture	Lecture	Exam		2					2	Pápayné Dr Sár Cecilia	**Biology BSc**	Spring Semester	
OBLIGATORY COURSES	ENBIOB1201	Zootaxonomy lecture	Lecture	Exam		1					3	Dr Horváth Győző	**Biology BSc**	Spring Semester	
OBLIGATORY COURSES	ENBIOB1202	Zootaxonomy practice	Practice	Practice grade		3					4	Dr Horváth Győző	**Biology BSc**	Spring Semester	
OBLIGATORY COURSES	ENBIOB0501	Introduction into the scientific Bibliography semina	Practice	Practice grade		1					1	Dr Stranczinger Szilvia	**Biology BSc**	Spring Semester	
OBLIGATORY COURSES	ENBIOB0801	General Ecology	lecture	exam			2				2	Dr Csabai Zoltán	**Biology BSc**	Autumn semester	
OBLIGATORY COURSES	ENBIOB3301	Microbiology	Lecture	Exam				2			2	Dr Fekete Csaba	**Biology BSc**	Spring semester	no course description
OBLIGATORY COURSES	ONFOL1-0202	Introduction to geology	lecture	Exam					3		3	Dr Kovács János	**Biology BSc**	Autumn semester	
OBLIGATORY COURSES	ENBIOB3201	Basic Genetics	Lecture	Exam					3		3	Dr Hoffmann Gyula	**Biology BSc**	Autumn semester	
OBLIGATORY COURSES	ENBIOB1601	Human biology	Lecture	Exam					2		2	Dr Wilhelm Márta	**Biology BSc**	Autumn semester	
OBLIGATORY COURSES	ENBIOB1701	Biogeography	lecture	Exam					2		2	Dr Purger Jenő	**Biology BSc**	Autumn semester	
OBLIGATORY COURSES	ENBIOB2001	Nature conservation and Environmental Protectio	lecture	Exam						2	2	Dr Csiky János	**Biology BSc**	Spring semester	
OBLIGATORY COURSES	ENBIOB3202	Genetics laboratory	practice	Practice grade						2	3	Dr Hoffmann Gyula	**Biology BSc**	Spring semester	
OBLIGATORY COURSES	ENBION2201/ENBIOB2301	Evolution	lecture	exam						2	2	Dr Hoffmann Gyula	**Biology BSc**	Spring semester	
OBLIGATORY COURSES	ENBIOB1901	Ethology	practice	Practice grade						2	3	Dr Purger Jenő	**Biology BSc**	Spring semester	
ELECTIVE COURSES	ENBIOBSV0601	Applied Biotechnology	practice	Practice grade					3		4	Dr Papp Gábor	**Biology BSc**	Autumn semester	
ELECTIVE COURSES	ENBIONSV0302	Microtechniques	practice	Practice grade				2			3	Dr Pollák Edit	**Biology BSc**	Spring semester	
ELECTIVE COURSES	ENBIONSV0303	Microtechniques laboratory	practice	Practice grade				3			4	Dr Pollák Edit	**Biology BSc**	Spring semester	
ELECTIVE COURSES	ENBIONSV0502	General toxicology	practice	Practice grade				3			4	Dr Papp Gábor	**Biology BSc**	Spring semester	
ELECTIVE COURSES	ENBIONSV1502	Models in neurobiology	practice	Practice grade						3	4	Dr Völgyi Béla	**Biology BSc**	Spring semester	
ELECTIVE COURSES	ENBIONSV0902	Functional histology	practice	Practice grade				3			4	Dr Molnár László	**Biology BSc**	Spring semester	
ELECTIVE COURSES	ENBIONS0602	Fundamentals in limnology seminar	practice	Practice grade				2			3	Dr Móra Arnold	**Biology BSc**	Spring semester	
ELECTIVE COURSES	ENBIOBSV1101	Plant identification	practice	Practice grade					2		3	Dr Albert Éva	**Biology BSc**	Autumn semester	

ELECTIVE COURSES	ENBIOBSV1201	Animal identification and ecology	practice	Practice grade					4		5	Dr Purger Jenő	**Biology BSc**	Autumn semester	
ELECTIVE COURSES	ENBIOBSV1301	Biomonitoring seminar	practice	Practice grade					3		4	Dr Horváth Győző	**Biology BSc**	Autumn semester	
ELECTIVE COURSES	ENBIOBSV1401	Soil science	practice	Practice grade					2		3	Dr Morschhauser Tamás	**Biology BSc**	Autumn semester	
ELECTIVE COURSES	ENBIONV0201	Fundamentals in plant sociology	practice	Practice grade						2	3	Dr Csiky János	**Biology BSc**	Spring semester	
ELECTIVE COURSES	ENBIOBSV1601	Conservation of flora and fauna seminar	practice	Practice grade						3	4	Dr Csiky János	**Biology BSc**	Spring semester	
ELECTIVE COURSES	ENBIOBSV1701	Introduction to applied ecology seminar	practice	Practice grade					3		4	Dr Horváth Győző	**Biology BSc**	Autumn semester	
OBLIGATORY COURSES	ENMNBIOA0101	Biophysics	lecture	exam							2	Dr Hideg Éva	**Biology MSc**	Autumn semester	
OBLIGATORY COURSES	ENMNBIOA2501	Biostatistics	practice	Practice grade							2	Dr Csabai Zoltán	**Biology MSc**		
OBLIGATORY COURSES	ENMNBIOA1601	Biotechnology	lecture	exam							5	Dr Jakab Gábor	**Biology MSc**		no course description
OBLIGATORY COURSES	ENMNBIO13	Developmental and stress physiology of plants	lecture	exam		28					2	Dr Jakab Gábor	**Biology MSc**	Spring semester	
OBLIGATORY COURSES	ENMNBIO2901	Ecological fundamentals in environmental protecti	practice	Practice grade							4	Dr. Csiky János	**Biology MSc**		
OBLIGATORY COURSES	ENMNBIO2801	Evolution of the structure and function in the living	lecture	exam							5	Dr. Hoffmann Gyula	**Biology MSc**		
OBLIGATORY COURSES	ENMNBIO2701	Molecular cell biology	lecture	Exam	42						3	Dr. Jakab Gábor	**Biology MSc**		
OBLIGATORY COURSES	ENMNBIOA0601	Proposal preparation and scientific communicatio	practice	Practice grade			2				2	Dr Gábriel Róbert	**Biology MSc**	Autumn semester	
OBLIGATORY COURSES	ENMNBIO3001	Regulatory biology	lecture	Exam		2					2	Dr Gábriel Róbert	**Biology MSc**	Spring semester	