

**WINE TERROIRS- SZBOR103N**

**SEMESTER: FALL AND SPRING**

**ECTS: 3**

**REQUIREMENT: EXAM**

**DESCRIPTION:** The course introduces students on an entertaining tour of the world's most celebrated winegrowing regions to discover the characteristics of the bond that ties the vine to its place of birth: the terroir. Topics are: terroirs in France, Spain, Italy, California, Chile, Australia, and South Africa, Hungary. The course wants to show how environment and soil and climate contribute to the precise and individual character of each terroir, making the great winegrowing regions what they are today. Participants will hear about the relationship between international grape varieties and the soil in which they grow, and how these factors affect the taste of the wines.

**GEOBOTANY AND VEGETATION ECOLOGY: ADAPTATION IN NATURAL AND SINANTROPIC ECOSYSTEMS- NOVTR041N**

**SEMESTER: FALL**

**ECTS: 5**

**REQUIREMENT: REPORT**

**DESCRIPTION:** During the course, students will learn about the most important features of terrestrial diversity, the distribution patterns and chorological aspects of plant species, the evolution and origin of crop species. The course will also highlight diversity changes caused by anthropogenic influences and cultural evolution. A major part of the lectures will be devoted to the ecology of plant populations, plant characters and population characteristics such as migration and dispersal, life strategies. How plant populations can adapt to changing environments and what are the most important morpho-phenological features of adaptation. Community structures will be studied, including the relationships between populations, natural succession, how these relationships are expressed in horticultural crops and how to avoid environmental degradation. Finally, how horticultural crops can be maintained in changing environmental and climatic conditions will be discussed.

**BIOLOGICALLY ACTIVE SUBSTANCES OF HORTICULTURAL CROPS – KERTU055N**

**SEMESTER: FALL**

**ECTS: 5**

**REQUIREMENT: EXAM**

**DESCRIPTION:** In this subject the most important biologically active compounds of different plant species are presented referring to their biosynthesis, role in the plant life, structure, effect on the human body and possible utilization. Project work elaboration is included in the requirements as well. The course ends with a written exam.

**PLANT PHYSIOLOGY AND MOLECULAR PLANT BIOLOGY – NOVTR067N**

**SEMESTER: FALL**

**ECTS: 3**

**REQUIREMENT: EXAM**

**DESCRIPTION:**

**PLANT MOLECULAR GENETICS AND GENOM EDITING – GENBT047N**

**SEMESTER: FALL**

**ECTS: 3**

**REQUIREMENT: EXAM**

**DESCRIPTION:** Molecular genetics and genetic engineering for horticultural plant breeding and biotechnological applications will be presented. The genetic regulation of horticultural plant development and the molecular genetic basis of biotic (e.g. virus, bacteria, insect) and abiotic (e.g. heat, cold) stress responses will be emphasized. Recent methods of genomics and genome editing and their results in horticultural crops will be described.

**NATURAL RESOURCES AND NATURE PROTECTION – KORTU181N**

**SEMESTER: FALL**

**ECTS: 3**

**REQUIREMENT: EXAM**

**DESCRIPTION:** During the course, students will learn the basics of soil protection, water quality protection and air quality protection. Emphasis will be placed on organic matter management options: composting, digestion, renewable and non-renewable energy sources and their impact on the environment. Students will also learn about the most important tasks of nature conservation.

**MEDICINAL AND SPICE PLANTS IN NUTRITION AND THERAPY – KERTU026N**

**SEMESTER: FALL**

**ECTS: 3**

**REQUIREMENT: EXAM**

**DESCRIPTION:** The occurrence of special plant substances in the plant kingdom is quite widespread. These substances play an important functional role in plant life, but they also have a wide range of uses in humans. In this course, students will learn about the biogenetic system of special substances, the structure of the five main classes of substances and the active systems within them. Also examples of the major substances in the active substance classes and their use in food and medicine will be presented.

**EVALUATION OF FRUIT CULTIVARS – KERTU041N**

**SEMESTER: FALL**

**ECTS: 3**

**REQUIREMENT: EXAM**

**DESCRIPTION:** The subject covers the most important fruit species and varieties of temperate fruit orchards. An introduction to variety evaluation methodology. Topics include different gene sources, breeding trends, recent achievements in domestic and international breeding.

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Students will learn the biological and technological basis of varietal mating for proper pollination. They will gain an understanding of the currently dominant fruit varieties and the possibilities for renewing the variety range.

**ORNAMENTAL PLANTS APPLICATION – TETTD028N**

**SEMESTER: FALL**

**ECTS: 3**

**REQUIREMENT: EXAM**

**DESCRIPTION:** Fundamentals of outdoor and indoor planting, plant association basics, establishment methods, sustainability of plant communities, traditional and innovative methods of tree valuation, specificities of establishing and planting special use gardens, principles of public floral and indoor design.

**BIOLOGICAL AND PHYTOTECHNICAL RESOURCES OF VITICULTURE – SZBOR004N**

**SEMESTER: SPRING**

**ECTS: 4**

**REQUIREMENT: EXAM**

**DESCRIPTION:** The course will explore the factors involved in the production of high quality grapes and possible scientific and practical ways forward. The judgement of the quality of grape production is based on a combination of subjective and objective (non-measurable and measurable) factors. In viticulture, the effects of variety, site, vintage and human factors are the main determinants. A well-planned phytotechnology (pruning and greening) based on physiological and biological knowledge is necessary to achieve a sufficiently high quality yield.

**UP-TO-DATE TECHNOLOGIES OF MEDICINAL PLANT PRODUCTION – KERTU060N**

**SEMESTER: SPRING**

**ECTS: 4**

**REQUIREMENT: EXAM**

**DESCRIPTION:** The subject matter covers all technological processes in the medicinal plant sector and their biological, ecological, agrotechnical, technical and regulatory aspects. It includes the following main knowledge: the importance of site conditions, soil cultivation techniques, breeding of medicinal plants, specificities of variety use, propagation techniques in medicinal plant production, nutrient supply options, the importance of irrigation, modern means and methods of plant protection and weed control, optimisation and methods of harvesting, primary and secondary processing and extraction methods, quality assurance issues.

**MODERN FRUIT GROWING BASED ON PHYSIOLOGY – KERTU061N**

**SEMESTER: SPRING**

**ECTS: 4**

**REQUIREMENT: EXAM**

**DESCRIPTION:** Students will acquire the theoretical foundations that justify the different interventions in cultivation. They will be able to modernise and improve the technological processes of fruit growing. The knowledge is linked in a complex way to the physiological, biochemical and technical curriculum. The subject covers in detail the details of the planning

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process of fruit plantations, the characteristics of cultivation systems, the technological operations of cultivation, the situation and development potential of temperate fruit

species.

**MODERN SYSTEMS IN FLORICULTURE – TETTD079N**

**SEMESTER: SPRING**

**ECTS: 4**

**REQUIREMENT: EXAM**

**DESCRIPTION:** This course provides a comprehensive knowledge of the trends in the cultivation of ornamental horticultural crops in the greenhouse. This will include the latest technological techniques used in cultivation, growth control options and controlled cultivation. Complementary crops and technologies not or only mentioned at the basic level are also covered: hydroponics; complementary ornamental potted flower crops; complementary cut flower crops. In vitro techniques used in ornamental horticulture. The students will practice the application of the knowledge acquired by carrying out a project.

**FORCING IN SOILLESS SYSTEMS AND CULTIVAR USE - KERTU080N**

**EMESTER: SPRING**

**ECTS: 4**

**REQUIREMENT: EXAM**

**DESCRIPTION:** Reasons for the development of soilless propulsion systems. Description of hydroponic systems in practice. Varietal hybrids of peppers, tomatoes, cassava and their soil-less germination. Varietal use of other important vegetables.

**PRODUCTION ECOSYSTEMS AND FORMS OF THEIR REGULATION - KERTU081N**

**EMESTER: SPRING**

**ECTS: 3**

**REQUIREMENT: EXAM**

**DESCRIPTION:** In this course, students will learn about the production systems in which horticultural species are currently produced. It will cover the analysis of the environmental factors (light, temperature, water, soil, nutrient supply and biotic factors) and their role in the different production systems. Plant responses to the optimum range of values and to the extremes of these factors are discussed as environmental factors.