

Akdeniz University 2021-2022 Spring Semester List of Courses

| Course Code | ECTS | Course Title | Content | Faculty | Department | Lecturer(s) | Online Available |
|-------------|--------|--|---|------------------------|--------------|-------------------------|------------------|
| BBB519 | 6 | Quality and Standardization of Horticultural Crops | Pre- and post-harvest factors that affect market quality of horticultural commodities with an emphasis on technologies to preserve quality and extend storage life of crops. The changes occurring in harvested horticultural crops and understand the means of controlling these changes. Basic physiological and biochemical processes associated with senescence, such as respiratory metabolism, chilling injury, and ethylene action. Causes of physiological disorders after harvest and their preventions. Measurement of product quality. Composition—sugars, acids, phytonutrients, aroma volatiles, color, texture and taste. Standardization of different crops. | Faculty of Agriculture | Horticulture | Prof. Dr. Mustafa ERKAN | x |
| | 6 | Postharvest Physiology of Horticultural Crops | To understand the qualitative and quantitative factors affecting postharvest losses of horticultural crops, including physiological and biochemical considerations, and compositional and physical changes occurring during maturation and senescence. Plant growth and development. Respiration: definition, characterization and measurement. Metabolism: composition, nutritional value, compositional changes. Transpiration: characterization and significance. Role of ethylene in postharvest senescence. Physiological disorders. To study commercial procedures of harvest, handling, packing, storage and marketing in relation to commodity requirements and responses. Modified atmosphere storage and controlled atmosphere technology | Faculty of Agriculture | Horticulture | Prof. Dr. Mustafa ERKAN | x |
| BBB209 | 6 | HORTICULTURE | introduction to horticultural crops, classification and taxonomy, nutrients values on human health; the growing potential and economic importance of the horticultural crops in Turkey and in all over the world; the growing potential and crop designs of the regional horticultural crops; ecological requirements of the horticultural crops; biological features of the horticultural crops; propagation methods of the horticultural crops; the orchard establishment of the horticultural crops; annual cultivation practices of the horticultural crops; the harvest and storage techniques of the horticultural crops; good agricultural practices of the horticultural crops. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB403 | 6 | VEGETABLE GROWING -I | General aspects of cool season vegetables; general aspects of compositeae family and artichoke growing; amaryllidaceae family, onion growing; amaryllidaceae family, garlic and leek growing; liliaceae family, asparagus growing; chenopodiaceae family, spinach growing; brassicaceae (cruciferae) family, cabbage growing; brassicaceae (cruciferae) family , cauliflower growing; brassicaceae (cruciferae) family, broccoli growing; brassicaceae (cruciferae) family, radish, garden rocket growing; brassicaceae (cruciferae) family, brussels sprout growing; apiaceae (umbelliferae) family, carrot growing; apiaceae (umbelliferae) family, celery growing; apiaceae (umbelliferae) family, parsley, dill growing | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB409 | 6 | VEGETABLE BREEDING | Description of vegetable breeding, aims and history, classification of vegetables and breeding gene resources, pollination mechanisms and techniques, introduction breeding methods, selection breeding methods, hybridization breeding methods, F1 breeding and heterosis, breeding of vegetables of different families | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB102 | 4(2+2) | BIOTECHNOLOGY | The aims of the course are to provide basic information about plant biotechnology, to give applications of its uses and to develop the laboratory skills of students on plant biotechnology. In this course, students will first be introduced to the principles and applications of plant cell and tissue culture. An overview of Agrobacterium-mediated and direct gene transfer techniques, production of herbicide-, insect-, virus-resistant and male-sterile plants and biosafety of transgenic plants will also be discussed. At the end of course students are going to be able to understand plant cell and tissue culture techniques, including: plant regeneration through organogenesis and embryogenesis, protoplast culture and somatic hybridization, haploid plant production, production of disease-free plants by meristem culture, micropropagation and be able to understand plant transformation techniques, including: particle bombardment, transformation of protoplasts, microinjection and Agrobacterium tumefaciens-mediated gene transfer | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB202 | 6 | PRINCIPLES OF VEGETABLE GROWING | The concept of the course covers important commercial species, the systematic classification, ecological requirements, fundamental factors that are necessary for establishing the vegetable crops, pollination, fertilization fruit set, propagation techniques, cultivation practices affected fruit yield and fruit quality and harvest methods and growing potential of the vegetable crops either in greenhouse or open field conditions. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB408 | 6 | VEGETABLE GROWING -II | General aspects of warm season vegetables; compositeae family and lettuce growing; leguminosae (fabaceae) family, pea growing; leguminosae (fabaceae) family, bean growing; solanaceae family, tomato growing; solanaceae family ,pepper growing; solanaceae family , eggplant growing; cucurbitaceae family, cucumber growing; cucurbitaceae family, squash growing; cucurbitaceae family, melon growing; cucurbitaceae watermelon growing; malvaceae family, okra growing | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB314 | 4(2+2) | BREEDING OF HORTICULTURE CROPS | The course is aimed to: (i) understand the basic principles of genetics and molecular biology needed for modern plant breeding; (ii) comprehend the different selection and breeding processes and assess the advantages and drawbacks of each according to the horticulture crop species, the breeding objectives and the environmental conditions; (iii) learn how to integrate in a breeding program the conventional techniques and most up-to-date methods that contribute towards greater efficacy in the selection processes and in the development of new varieties; and (iv) design a breeding program for a given horticulture crop species. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |

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| ZF 204 | 4 | GENETICS | The aim of the course is to provide students with a strong background in the principles of Mendelian genetics. Students will become familiar with Mendel's basic postulates and the additional insights that modern genetics has brought to this field and to make students aware of the power of DNA technology. During the course the basic concepts of DNA manipulations will also be taught. The course "Genetics" is designed to introduce the student to nearly all of the fundamental concepts of genetics. The 2/3 of the course will focus on the basic principles of classical (Mendelian) genetics, while the 1/3 of the course will deal with the modern discoveries of molecular biology and their applications in today's world. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB501 | 6 | GENETIC IMPROVEMENT OF HORTICULTURE PLANTS | Genetic enhancement of crop value to humans began with domestication and continues with farmers' variety development and scientifically trained plant breeders' applications of Mendelian, quantitative, and molecular genetics. This course examines horticultural crops, fruits and vegetables, genetic improvement methods, tools genetics. This course examines horticultural crops, fruits and vegetables, genetic improvement methods, tools available to breeders, choices and modifications of the tools to meet specific objectives, and challenges plant breeders face in developing varieties for the future. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB503 | 6 | Horticultural Systems | Science and technology of horticultural plants grown for foods and ornamental, purposes. Lectures, labs, and field trips involve natural history and evolution of horticultural plants, botany and physiology, sustainable management of soil, water and plant nutrition, breeding and propagation, ecological functions, and integrated design and management of horticultural plantings and production systems | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB505 | 6 | Physiology and Development of Plants in Horticulture | Protected horticulture depends on modifying the physical environment of an enclosed space so as to improve the growth and quality of plants. The course comprises advanced plant physiology and developmental biology described in relation to the production of plants, cut flowers, fruits, etc. under protected cultivation. The physiological content emphasizes plant responses to the environment, such as photosynthesis, temperature stress, water relations etc. The developmental content deals with plant propagation techniques, flower induction and development, plant morphological control etc. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB507 | 6 | Biotechnology of Horticultural Crops | The first set of lectures outlines the techniques used in Plant Biotechnology and in the second set, specific examples of application of these techniques and the effects on science and society are provided. Guest lectures will be provided on Entrepreneurship in Plant Biotechnology. During the course a plant biotech company will be visited. Various techniques will be taught during course. Throughout the course period, students will work on an assignment focusing on one particular plant biotechnology case, which requires searching for and understanding of recent scientific literature. The results of this case study will be presented at the end of the term. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB509 | 6 | Vegetable Seed Technology | During the course basic seed technological knowledge is provided, including vegetable seeds dormancy, seed quality, seed development, storage and quality improvement methods and ecological factors on vegetable seed production. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB511 | 6 | DNA Fingerprinting Methods of Horticultural Crops | Some of the factors that limit the progress of plant breeding can be overcome or achieved more rapidly by utilising plant biotechnology including the DNA fingerprinting methods. In this course, students will first be introduced to the principles and applications of different fingerprinting methods. Later on each individual fingerprinting methods are taught and discussed in details including advantages and disadvantages of each method. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB513 | 6 | Recent Developments in Vegetable Growing | In a comparison to other crops vegetable industry has a highly dynamic system and many developments take place in each year within the vegetable industry. Therefore the main objective of the course is to raise students aware of the these dynamic systems and get familiar with recent developments. Developments and changes take place in vegetable production areas, vegetable production systems, recently developed cultivars and their main features, recent developments take place in vegetable seed industry and vegetable seedling industry as well as seedlings. | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB515 | 6 | Genetic Resources and Preservation of Horticultural Crops | Description of plant genetic resources, distribution of plant genetic resources all around the world, center of origins, genetic resources erosion, finding, collecting and preservation of genetic resources of horticultural crops, storage of genetic resources and recording | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| BBB517 | 6 | Genome and Genome Analysis of Horticultural Crops | To provide basic information about the genome of horticultural crops is the main objective of the course. Another objective of the course is to teach the students how one can use the results of genome analysis results for horticultural crops. Although genome term has been known for a long time, genomic term is rather new term. Genomic term first time was used in 1986. Genomic term is used for genome mapping, sequencing and characterization. Within this context genomic term can be divided into 3 different parts: 1. Functional genomics, 2. Structural genomics and 3. Comparative genomics. Within this course genome, genome analysis and genome structures issues are discussed within the horticultural crops | Faculty of Agriculture | Horticulture | Prof. Dr. A. Naci ONUS | x |
| | 10 | Traineeship | Growing, cultivation and breeding studies of vegetable crops, obtaining haploid plants and the use of molecular markers on improvement of vegetable crops | Faculty of Agriculture | Horticulture | Assist. Prof. Dr. İlhami TOZLU | x |
| BBB405 | 6 | Citriculture | This course gives an overview about the Citrus production World wide and the Mediterranean Basin in Particular. Topics covered are: growing potential, systematic classification, widely grown cultivars, morphological and biological features of Citrus species, propagation techniques and cultural practices. Rootstock and scion selection, and nurseries, orchard establishment crop production, crop health, economics of crop production and post harvest considerations. Students are also introduced in the World citrus market and its changes, and future expectations in Citrus production. | Faculty of Agriculture | Horticulture | Assist. Prof. Dr. İlhami TOZLU | x |
| BBB207 | 3 | General Fruit Science | The course encompasses information which includes, the history of fruit science, classification of World fruit species. General aspects of fruit science and farming will be discussed as; biology, morphology, and physiology of fruit trees. Orchard and cultural practices are also covered in the course as, propagation orchard establishment, flowering and fertilization, cultural practices, processing and storage. | Faculty of Agriculture | Horticulture | Assist. Prof. Dr. İlhami TOZLU | x |
| BBB301 | 3 | Temperate Fruits -I | Principles of fruit production, emphasizing on temperate nut crops are the main subject of this course. Crops to be studied include almond, walnut, pistachio, hazelnut, chestnut etc. Within this course integrated management of temperate nut cropping systems including site selection, orchard establishment cultural and management practices, taxonomic classifications, physiological and environmental control of plant development will be covered. | Faculty of Agriculture | Horticulture | Assist. Prof. Dr. İlhami TOZLU | x |
| BBB406 | 6 | Subtropical Fruits | The course will emphasise on applied aspects of the physiological basis for horticultural practices used, and the practices of commercial subtropical fruit crop production (except for citrus). Crops to be studied include | Faculty of Agriculture | Horticulture | Assist. Prof. Dr. İlhami TOZLU | x |

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| | | | olive, fig, pomegranate avocado, pecan, persimmon, carob, loquat, opuntia, date palm, etc. Subject matter will include applied crop physiology and production methods, morphological and biological features of species, propagation techniques, orchard establishment, and cultural practices. In addition, insect and disease management, soil science, hydrology, and genetics and plant breeding will be discussed. | | | | |
| BBB402 | 4(2+2) | Temperate Fruits -II | Principles of fruit production, emphasizing on temperate fruit crops are the main subject of this course. Pome and stone fruits are the main fruit groups will be emphasized in the course. Crops to be studied include apple, pear, quince, cherry, peach, apricot, plum etc. Within this course integrated management of temperate fruit cropping systems including site selection, orchard establishment cultural and management practices, taxonomic classifications, physiological and environmental control of plant development will be covered. Recent development in orchards systems, modern and intensive orchard establishment and management (ferti-irrigation, pruning, training, harvesting etc.) will be the important part of this course. | Faculty of Agriculture | Horticulture | Assist. Prof. Dr. İlhami TOZLU | x |
| | 4(2+2) | Plant Propagation and Horticultural Techniques | The course introduces the student variety of basic knowledge on plant propagation and horticultural activities/techniques. Some emphasis is placed on the set-up and hands-on applications such as principles and practices of sexual and asexual plant propagation, become familiar with propagation tools, media, and propagation structures. Propagation methods covered are seeding, cuttings, layering, division, grafting, budding and micro-propagation. Horticultural techniques covered are soilless production systems, modern orchard establishment and management including intensive planting, various trellising, pruning and training. These horticulture techniques will be suitable /adaptable for use in diverse crop systems (orchard, landscape, home and veggie gardens, nursery and greenhouse). | Faculty of Agriculture | Horticulture | Assist. Prof. Dr. İlhami TOZLU | x |
| | 4 | Cellular Biochemistry | Cellular Biochemistry is the study of the chemical processes of living Cells. The course is an examination of the structure and function of biomolecules: chemical and physical properties of proteins, carbohydrates, and lipids; enzyme kinetics and mechanisms; metabolism of carbohydrates, lipids, and amino acids. The topics covered include: "Structure and Properties of Water, pH, Buffers", "Amino Acids and Primary Protein Structure", "Protein Function", "Enzymes: Structure, Function, Regulation and Enzyme Inhibition", "Lipids and Membrane Structure", Metabolism: "Glycolysis, Citric Acid Cycle, mitochondrial Electron Transport and ATP Synthesis", "Catabolism of Lipids, Nitrogen Utilization", There will be special emphasis on plant biochemistry and metabolism included photosynthesis and nitrogen metabolism. | Faculty of Agriculture | Horticulture | Assist. Prof. Dr. İlhami TOZLU | x |