



**2022-2023 Academic Year**  
**List of Courses Offered in Foreign Language**

**Institute of Science**  
**Fen Bilimleri Enstitüsü**

	Department <i>Bölüm</i>	Course Code <i>Ders Kodu</i>	ECTS <i>AKTS</i>	Course Title <i>Dersin Adı</i>	Semester <i>Dönem</i>	Course Content <i>Dersin İçeriği</i>	Academic Staff <i>Dersi Veren Öğretim Elemanı</i>	Online Available <i>Çevrimiçi</i>
1	Bahçe Bitkileri <i>Horticulture</i>	-	(3+0)	Turfgrass Management	Spring	The aims of this course are to give an overview of the turfgrasses and turf industry as an important part of ornamental plant Industry, showing its relative size and the opportunities available to people knowledgeable in turf practices, to teach techniques of sod, seed and plug production, the importance and benefits of turf areas, how to select, establish and maintain quality and sustainable turf grass areas. The main principles regarding turfgrass production and turf management will be supported with the up to date turf studies. Topics will include overview of the turfgrass industry (Turfgrass breeders, producers, turfgrass seed and related equipment suppliers etc) both in the world and Turkey, classification of turfgrasses and descriptions of plant characteristics, physiology, biology and morphology of cool season and warm-season turfgrasses, methods of turf establishment and management practices, common problems that can afflict turfgrasses and the steps required to correct the problems and turfgrass production (sod, seed and plug) .	Songül Sever Mutlu, Ph.D	-
2	Bahçe Bitkileri <i>Horticulture</i>	-	(3+0)	Stress Physiology of Horticultural Plants	Spring	This course will teach the abiotic and biotic stress mechanisms and physiological principles as they relate to propagation, cultivation and postharvest quality of horticultural crops. Topics will include the meaning of stress, types of stresses (drought, salinity, high temperature, chilling, freezing, etc). Moreover, the effects of genetics, environmental factors and the cultural practices used plant production and cultivation on biotic and abiotic stress tolerance will be discussed.	Songül Sever Mutlu, Ph.D	-
3	Bahçe Bitkileri <i>Horticulture</i>	BBB209	6 ECTS (3+0)	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.	Prof. Dr. A. Naci ONUS	X
4	Bahçe Bitkileri <i>Horticulture</i>	BBB403	6 ECTS (3+0)	Vegetable Growing-I	-	General aspects of cool season vegetables; general aspects of compositae 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	Prof. Dr. A. Naci ONUS	X
5	Bahçe Bitkileri <i>Horticulture</i>	BBB409	6 ECTS (3+0)	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	Prof. Dr. A. Naci ONUS	X
6	Bahçe Bitkileri <i>Horticulture</i>	BBB102	4 ECTS (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	Prof. Dr. A. Naci ONUS	X
7	Bahçe Bitkileri <i>Horticulture</i>	BBB202	6 ECTS (3+0)	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.	Prof. Dr. A. Naci ONUS	X

8	Bahçe Bitkileri <i>Horticulture</i>	BBB408	6 ECTS (3+0)	Vegetable Growing-II	-	General aspects of warm season vegetables; compositae 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	Prof. Dr. A. Naci ONUS	X
9	Bahçe Bitkileri <i>Horticulture</i>	BBB314	4 ECTS (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.	Prof.Dr. A. Naci ONUS E-mail: onus@akdeniz.edu.tr Tel: 0090 242 310 24 41	X
10	Bahçe Bitkileri <i>Horticulture</i>	ZF204	4 ECTS (2+0)	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.	Prof. Dr. A. Naci ONUS	X
11	Bahçe Bitkileri <i>Horticulture</i>	BBB501	6 ECTS (3+0)	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 available to breeders, choices and modifications of the tools to meet specific objectives, and challenges plant breeders face in developing varieties for the future.	Prof. Dr. A. Naci ONUS	X
12	Bahçe Bitkileri <i>Horticulture</i>	BBB503	6 ECTS (3+0)	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	Prof. Dr. A. Naci ONUS	X
13	Bahçe Bitkileri <i>Horticulture</i>	BBB505	6 ECTS (3+0)	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.	Prof. Dr. A. Naci ONUS	X
14	Bahçe Bitkileri <i>Horticulture</i>	BBB507	6 ECTS (3+0)	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	Prof. Dr. A. Naci ONUS	X
15	Bahçe Bitkileri <i>Horticulture</i>	BBB509	6 ECTS (3+0)	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.	Prof. Dr. A. Naci ONUS	X
16	Bahçe Bitkileri <i>Horticulture</i>	BBB511	6 ECTS (3+0)	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.	Prof. Dr. A. Naci ONUS	X
17	Bahçe Bitkileri <i>Horticulture</i>	BBB513	6 ECTS (3+0)	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 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.	Prof. Dr. A. Naci ONUS	X

18	Bahçe Bitkileri <i>Horticulture</i>	BBB515	6 ECTS (3+0)	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	Prof. Dr. A. Naci ONUS	X
19	Bahçe Bitkileri <i>Horticulture</i>	BBB517	6 ECTS (3+0)	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	Prof. Dr. A. Naci ONUS	X
20	Bahçe Bitkileri <i>Horticulture</i>	-	10 ECTS	Traineeship	-	Growing, cultivation and breeding studies of vegetable crops, obtaining haploid plants and the use of molecular markers on improvement of vegetable crops	Prof. Dr. A. Naci ONUS	X