Course Syllabus

Code - Course Title	**BDY221 - Nutrition Chemistry and Analysis I**
Course Type	III. SEMESTER
Laboratory + Practice	2+2
ECTS	**5.0**
Language of Instruction	Türkçe
Course Type	Required Courses
Course Instructor(s)	DOÇ. DR. MURAT SOYSEVEN

Mode of Delivery	This course will only face-to-face training.
Place of Delivery	On Campus
Used Educational Platforms	Face-to-face
Prerequisites	There are no prerequisites for this course.
Courses Recomended	None
Recommended Resources	Campbell-Platt G. Food Science and Technology. Wiley-Blackwell, Oxford UK, 2009.Gıda Kimyası, Mehmet Demirci, Şubat 2012, 6. Baskı ISBN: 975-97146-2-0. Gıda Kimyası, İlbilge Saldamlı, Ankara 2004, ISBN: ISBN: 9789756331163.Gıda Kimyası, Mustafa Tayar ve Recep Çıbık, Bursa 2011, ISBN: 978-605-4118-85-4.Cooking as a Chemical Reaction: Culinary Science with Experiments, Sibel Özilgen, CRC Press 2015, ISBN: 978-1-4665-5480-1.Food Chemistry Journals.
Work Placement	None
Aims of the Course	The aim of this course is to enable students to understand the chemical structure, composition, and physicochemical properties of foods and to provide them with a scientific understanding of the structural characteristics, classification, and chemical behavior of water, carbohydrates, amino acids, proteins, and lipids found in foods. Additionally, the course aims to explain the fundamental properties of chemical solutions and colloidal systems, evaluate interactions among food components, and develop an understanding of the physical and chemical changes that occur during food processing, preparation, and storage.Furthermore, the course aims to examine the chemical properties and functions of enzymes, pigments, and aroma and flavor compounds found in foods, as well as their effects on food quality. It also aims to enable students to learn the principles of basic food analyses, become familiar with analytical methods used to determine food components, and interpret the obtained results from the perspective of nutrition and dietetics. Thus, the course seeks to equip students with the fundamental knowledge and skills necessary to scientifically evaluate the relationships between the chemical composition of foods and their nutritional value, bioavailability, digestibility, quality, and safety.

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Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1	**LO-1** **LO-2**	Introduction to food chemistry	Lecture, Observation, Question & Answer, Discussion

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Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 2	LO-2 LO-3	The importance of water in food	Lecture, Observation, Question & Answer, Discussion, Practice/Practical Work/Workshop
Week - 3	LO-1 LO-2 LO-3	Colloid systems	Lecture, Discussion, Experiment
Week - 4	LO-5	Carbohydrates I	Lecture, Question & Answer, Discussion, Case Study, Brain Storming, Research and Inquiry
Week - 5	LO-5	Carbohydrates II	Lecture, Question & Answer, Discussion, Experiment, Case Study, Research and Inquiry
Week - 6	LO-6	Proteins I	Lecture, Question & Answer, Discussion, Experiment, Brain Storming, Research and Inquiry
Week - 7	LO-6	Proteins II	Lecture, Question & Answer, Discussion, Case Study, Research and Inquiry
Week - 8	LO-7	Lipids I	Lecture, Discussion
Week - 9	LO-7	Lipids II	Lecture, Discussion, Case Study, Research and Inquiry
Week - 10	LO-11	Enzymes	Lecture, Question & Answer, Discussion, Brain Storming, Role Playing/Dramatization, Demonstration
Week - 11	LO-1 LO-8	Pigments, Flavor and Fragrance Compounds	Lecture, Question & Answer, Discussion, Case Study, Brain Storming, Research and Inquiry
Week - 12	LO-9	Minerals, Oxidation and Their Effects on Foods	

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Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 13	LO-10	Food additives	Lecture, Question & Answer, Case Study, Brain Storming, Research and Inquiry
Week - 14	LO-5 LO-6 LO-7 LO-8 LO-9 LO-10 LO-11	Sample case/experiment reviews	Lecture, Observation, Question & Answer, Discussion, Case Study, Brain Storming, Role Playing/Dramatization, Research and Inquiry

Learning Outcomes

#	Learning Outcome
1	Knows the physical and chemical properties of macronutrients and other nutritional components in the structure of foods.
2	Learns the physical and chemical properties of water in the structure of foods.
3	Explain the principles of physical and chemical reactions that affect the quality of food.
4	Interprets the relationship between physical and chemical properties of foods and human health.
5	Explains the chemical structures, classifications, physicochemical properties of carbohydrates, and the chemical changes that occur in foods.
6	It evaluates the chemical structures, classifications, functional properties, and nutritional importance of amino acids and proteins.
7	Explains the chemical structures, classifications, physicochemical properties of lipids, and the changes that occur during the processing and storage of foods.
8	It evaluates the chemical structures, classifications, physicochemical properties, functions in foods, and the changes that occur during processing and storage.
9	Explains the chemical properties, classifications, forms of occurrence in foods, bioavailability, and nutritional importance of minerals.
10	It evaluates the chemical structures, classifications, technological functions, and purposes of use of food additives, as well as their effects on food quality and food safety.
11	Explains the structures, classifications, mechanisms of action, and areas of application in the food industry of enzymes found in foods.

Sustainable Development Goals

✓ Health and Quality of Life ✓ Quality Education ✓ Clean Water and Sanitation ✓ Accessible and Clean Energy ✓ Responsible Production and Consumption ✓ Partnerships for Purposes

Course Theme

✓ Health Sciences and Medical Technologies

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	4.00	14	56
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	4.00	2	8
Ödevler	2.00	1	2
Proje - Rapor - Sunum Hazırlama	0.00	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	10.00	3	30
Final Sınavı Hazırlığı (sınav süresi dahil)	10.00	3	30
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	1.00	1	1
Staj Uygulaması	0.00	0	0
		Calculated ECTS	**5.0**

Assessment Method and Passing Requirements

✓ Multiple Choice Test

Assessment Method and Passing Requirements	Quamtity	Percentage (%)
1.Midterm Exam	1	40
Final Exam	1	60
	Sum (%)	**100**