# ADVANCED FOOD CHEMISTRY

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| 1 | Course Title: | ADVANCED FOOD CHEMISTRY | |
| 2 | Course Code: | GMB6014 | |
| 3 | Type of Course: | Optional | |
| 4 | Level of Course: | Third Cycle | |
| 5 | Year of Study: | 1 | |
| 6 | Semester: | 2 | |
| 7 | ECTS Credits Allocated: | 5.00 | |
| 8 | Theoretical (hour/week): | 3.00 | |
| 9 | Practice (hour/week): | 0.00 | |
| 10 | Laboratory (hour/week): | 0 | |
| 11 | Prerequisites: | - | |
| 12 | Language: | Turkish | |
| 13 | Mode of Delivery: | Face to face | |
| 14 | Course Coordinator: | Prof. Dr. Ö.UTKU ÇOPUR | |
| 15 | Course Lecturers: | Doç. Dr. C. Ece TAMER | |
| 16 | Contact information of the Course Coordinator: | Uludağ Üniversitesi Ziraat Fakültesi Gıda Mühendisliği Bölümü<br>16059 Görükle/Bursa<br>Tel: 0224 2941501<br>Fax: 0224 2941402<br>e-posta: etamer@uludag.edu.tr | |
| 17 | Website: | | |
| 18 | Objective of the Course: | The aim of the course is to teach food components like water, carbohydrates, proteins, lipids, vitamins, minerals, phenolics, pigments, aromatic compounds, enzymes, toxic compounds naturally found in foods. Also their reactions and alteration of them during processing are explained. | |
| 19 | Contribution of the Course to Professional Development: | | |
| 20 | Learning Outcomes: | | |
| | | **1** | The students will be able to have knowledge about the composition of foods in details. |
| | | **2** | The students will be able to gain the ability to interpret and analyze chemical reactions in the process starting from raw materials to the final product. |
| | | **3** | The students will be able to learn the effects of food processing methods on the food components. |
| | | **4** | The students will be able to learn the chemical, physical and functional properties of food constituents. |
| | | **5** | The students will be able to learn the principles of chemical and biochemical changes that take place with food components during processing and storage. |
| | | **6** | The students will be able to have knowledge about the properties of the food aditives. |
| | | **7** | The students will be able to have knowledge about the properties of food contaminants. |
| | | **8** | |
| | | **9** | |
| | | **10** | |
| 21 | Course Content: | | |

| | Course Content: | |
|---|---|---|
| Week | Theoretical | Practice |
| **1** | Composition of foods | |
| **2** | Structure of carbohydrates and their functions | |
| **3** | Structure of proteins and their functions | |
| **4** | Structure of lipids and their functions | |
| **5** | Vitamins and their functions | |
| **6** | Minerals and their functions | |
| **7** | Main types of enzymes and enzymatic reactions in foods, and their kinetics | |
| **8** | Nonnutritive components of foods, probiotics, prebiotics | |
| **9** | Food additives | |
| **10** | Phenolic compounds | |
| **11** | Pigments and their functions | |
| **12** | Toxic compounds and contaminants | |
| **13** | Natural aromatic compounds in food | |
| **14** | Student assignment presentation | |

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| **22** | Textbooks, References and/or Other Materials: | Deman, J.M. 1980. Principles of Food Chemistry. Avi PublishingCo. Westport Connecticut.<br><br>Demirci, M. 1999. Gıda Kimyası. Tekirdağ Üniversitesi Ziraat Fakültesi Gıda Mühendisliği Bölümü.<br><br>Kayahan, M. 2003. Yağ Kimyası. ODTÜ Yayıncılık, Ankara.<br><br>Saldamlı, İ. 2007. Gıda Kimyası. Hacettepe Üniversitesi Basımevi, Ankara.<br><br>Bilişli A. 2009. Gıda Kimyası. Sidas Medya, Çanakkale. 355 s<br><br>Altuğ, T., (Editör), 2009. Gıda katkı maddeleri. Sidas Medya. 3. Baskı. İzmir. 268s.<br><br>Altuğ, T. 2002. Introduction to Toxicology and Food. CRC Press. Florida. 168s.<br><br>S.Ötleş (Editör). 2012. Methods of Analysis of Food Components and Additives. CRC Taylor & Francis Group, Second Edition, Boca Raton, pp. 519 |
| **23** | Assesment | |

| **TERM LEARNING ACTIVITIES** | **NUMBER** | **WEIGHT** |
|---|---|---|
| Midterm Exam | 0 | 0.00 |
| Quiz | 0 | 0.00 |
| Home work-project | 1 | 50.00 |
| Final Exam | 1 | 50.00 |

| | | |
|---|---|---|
| Total | 2 | 100.00 |
| Contribution of Term (Year) Learning Activities to Success Grade | | 50.00 |
| Contribution of Final Exam to Success Grade | | 50.00 |
| Total | | 100.00 |
| Measurement and Evaluation Techniques Used in the Course | | |

## 24 ECTS / WORK LOAD TABLE

| Activites | Number | Duration (hour) | Total Work Load (hour) |
|---|---|---|---|
| Theoretical | 14 | 3.00 | 42.00 |
| Practicals/Labs | 0 | 0.00 | 0.00 |
| Self study and preperation | 14 | 2.00 | 28.00 |
| Homeworks | 1 | 40.00 | 40.00 |
| Projects | 0 | 0.00 | 0.00 |
| Field Studies | 0 | 0.00 | 0.00 |
| Midterm exams | 0 | 0.00 | 0.00 |
| Others | 0 | 0.00 | 0.00 |
| Final Exams | 1 | 35.00 | 35.00 |
| Total Work Load | | | 145.00 |
| Total work load/ 30 hr | | | 4.83 |
| ECTS Credit of the Course | | | 5.00 |

## 25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

| | PQ1 | PQ2 | PQ3 | PQ4 | PQ5 | PQ6 | PQ7 | PQ8 | PQ9 | PQ10 | PQ11 | PQ12 | PQ13 | PQ14 | PQ15 | PQ16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ÖK1** | 3 | 3 | 4 | 4 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK2** | 4 | 3 | 5 | 4 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK3** | 3 | 4 | 4 | 4 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK4** | 4 | 4 | 5 | 4 | 4 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK5** | 4 | 3 | 5 | 4 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK6** | 3 | 3 | 4 | 4 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK7** | 3 | 3 | 4 | 4 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**LO: Learning Objectives PQ: Program Qualifications**

| Contribution Level: | 1 very low | 2 low | 3 Medium | 4 High | 5 Very High |
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