

| Course Title                                   | Code   | Semester                   | Theoretical (hours/week) | Practice (hours/week) | Laboratory (hours/week) | ECTS |
|--|--|----------------------------|--------------------------|-----------------------|-------------------------|------|
| Food Toxicology                                | BDB240   | 4th Semester / Spring Term | 2                        | 0                     | 0                       | 4    |
| Prerequisites                                  | None   |                            |                          |                       |                         |      |
| Language of Instruction                        | Turkish  |                            |                          |                       |                         |      |
| Course Type                                    | Elective   |                            |                          |                       |                         |      |
| learning and teaching techniques of the Course | Expression Method, Question - Answer Method, Brainstorming Method  |                            |                          |                       |                         |      |
| Instructor(s)                                  |  |                            |                          |                       |                         |      |
| Goal   | Learning of toxic substances naturally occurring in foods or formed and transmitted during production, preparation and storage, understanding the potential effects of these substances on detoxification mechanisms and health and understanding the legal regulations on food toxicology.  |                            |                          |                       |                         |      |
| Learning Outcomes                              | 1. Gain basic knowledge about food toxicology<br>2. Knows the toxicological properties of poisonous substances naturally found and transmitted in foods.<br>3. Understands food pollutants and their effects on health<br>4. Learn legislation related to food safety and toxicology in the World and Turkey   |                            |                          |                       |                         |      |
| References                                     | 1. Kodeks Alimentarius Commission, <a href="http://www.codexalimentarius.net">www.codexalimentarius.net</a><br>2. Ministry of Food and Agriculture and Livestock, Turkish Food Codex <a href="http://www.gkgm.gov.tr/mevzuat/kodeks/kodeks_liste.html">http://www.gkgm.gov.tr/mevzuat/kodeks/kodeks_liste.html</a><br>3. Lu FC., Kacew S. (2009) Lu's Basic Toxicology, Fundamentals, Target Organs and Risk Assessment, (Edited by), Fifth Edition, CRC press.<br>4. Altuğ T. Introduction to Toxicology and Food, CRC Press, Boca raton, 2003.<br>5. Tayfur M. Food hygiene, foodborne infections and poisonings, Kuban printing house, Ankara, 2009.<br>6. Deshpande S.S. (2002). Handbook of Food Toxicology, CRC press.<br>7. Centers for Disease Control and Prevention (CDC), <a href="http://www.cdc.gov">http://www.cdc.gov</a><br>8. European Food Safety Authority (EFSA), <a href="http://www.efsa.europa.eu">http://www.efsa.europa.eu</a><br>9. World Health Organization (WHO), <a href="http://www.who.int">http://www.who.int</a> |                            |                          |                       |                         |      |

#### Course Outline Weekly:

| WEEKS    | TOPICS  |
|----------|---|
| 1. Week  | Principles of food toxicology                         |
| 2. Week  | Food safety and principles                            |
| 3. Week  | Effective pathways of toxins                          |
| 4. Week  | Biotransformation mechanisms                          |
| 5. Week  | Natural toxic compounds found in foods                |
| 6. Week  | Microbial toxins in foods                             |
| 7. Week  | Environmental pollutants in foods                     |
| 8. Week  | <b>MIDTERM EXAM</b>                                   |
| 9. Week  | Toxic contaminants from industrial waste              |
| 10. Week | Pesticide residues and radionuclides in foods         |
| 11. Week | Contaminants carried from foodstuffs to food          |
| 12. Week | Pollutants formed during the cooking process in foods |
| 13. Week | Ways to prevent food toxicity                         |
| 14. Week | Health effects of pollutants in foods                 |
| 15. Week | Legal regulations about food pollution                |

#### ECTS (Student Work Load Table)

| Activities  | Number          | Duration | Total Work Load |
|---|-----------------|----------|-----------------|
| Course Duration   | 14              | 2        | 28              |
| Laboratory  |                 |          |                 |
| Practice  |                 |          |                 |
| Field Study   |                 |          |                 |
| Study Time Out of Class (Free study / Group Work / Preliminary Work)  | 14              | 4        | 56              |
| Presentation (Making videos / Preparing a poster / Oral presentation / Focus Group Meeting / Survey Application / Observation and Report Writing) |                 |          |                 |
| Seminars  |                 |          |                 |
| Project   |                 |          |                 |
| Case study  |                 |          |                 |
| Role playing, Dramatization   |                 |          |                 |
| Writing articles, Critique  |                 |          |                 |
| Mid-term Exam   | 1               | 6        | 6               |
| Final Exam  | 1               | 10       | 10              |
| <b>Total Work Load ( hour) / 25(s)</b>  | <b>100/25=4</b> |          |                 |
| <b>ECTS</b>   | <b>4</b>        |          |                 |

**Evaluation System**

| <b>Mid-Term Studies</b>                     | <b>Number</b> | <b>Contribution</b> |
|---|---------------|---------------------|
| Midterm exams                               | 1             | 100%                |
| Quiz  |               |                     |
| Laboratory                                  |               |                     |
| Practice                                    |               |                     |
| Field Study                                 |               |                     |
| Course Internship (If There Is)             |               |                     |
| Homework's                                  |               |                     |
| Presentation and Seminar                    |               |                     |
| Project                                     |               |                     |
| Other evaluation methods                    |               |                     |
| <b>Total Time To Activities For Midterm</b> |               | 100                 |
| <b>Final works</b>                          |               |                     |
| Final                                       | 1             | 100%                |
| Homework                                    |               |                     |
| Practice                                    |               |                     |
| Laboratory                                  |               |                     |
| <b>Total Time To Activities For Midterm</b> |               | 100                 |
| Contribution Of Midterm Studies On Grades   |               | 40%                 |
| Contribution Of Final Exam On Grades        |               | 60%                 |
| <b>Total</b>                                |               | 100                 |

**The relationship between learning outcomes and the program qualifications of the courses**

| <b>Program Qualifications</b>  |              |               |              |              |
|--|--------------|---------------|--------------|--------------|
|  | <b>L.O.1</b> | <b>L.O. 2</b> | <b>L.O.3</b> | <b>L.O.4</b> |
| 1. Enables the students to use theoretical knowledge based on basic and social sciences in practice.   | 5            | 5             | 5            | 5            |
| 2. Has the ability to use equipments and information Technologies required for the professional practice efficiently.  | -            | -             | -            | -            |
| 3. Knows his rights, duties and responsibilities towards the society, colleagues, and other professions, individuals and patients, and learns how to behave in harmony with the professional ethical rules.  | -            | -             | -            | -            |
| 4. When confronted with problems within any field of Nutrition and Dietetics, has the ability to observe, diagnose, assess, report and come up with solutions thanks to their up-to-date knowledge and skills.   | 5            | -             | 3            | -            |
| 5. Gains efficient working skills based on the principles of effective communication, responsibility, solution-oriented working in disciplinary and interdisciplinary conditions.  | 4            | 5             | 5            | 5            |
| 6. Has the ability to make a plan for a research individually or as part of a team, make experiments, collect and analyze the data, interpret and write a report by using theoretical / practical knowledge and skills gained in the field of Nutrition and Dietetics. | -            | -             | -            | -            |
| 7. Develops suggestions for healthy/sick individuals and those at risk considering their lifelong diet.  | -            | -             | -            | -            |
| 8. Gains knowledge to contribute to the diet plans and policies to be developed based on the needs of the individuals and the society.   | -            | -             | -            | -            |
| 9. Improves themselves by following the latest advances in their profession nationally and internationally, and acquires awareness in lifelong learning.   | 4            | 5             | 5            | 5            |

**Contribution to the level of proficiency: 1. Lowest, 2. Low / Medium, 3. Average, 4. High, 5. Excellent**