



Course Syllabus

Course Code	Course Title	ECTS Credits
NUTR-420	Food and Nutritional Toxicology	6
Prerequisites	Department	Semester
None	Life & Health Science	Fall/Spring
Type of Course	Field	Language of Instruction
Core requirement	Nutrition/Dietetics	English/Greek
Level of Course	Lecturer(s)	Year of Study
1 st Cycle	Dr George Loukaides	4 th
Mode of Delivery	Work Placement	Corequisites
face-to-face	N/A	None

Course Objectives:

The main objectives of the course are to:

- This course will introduce students to the nature, properties, effects, and detection of toxic substances in food and will provide a general understanding of toxicology related to food and the human food chain.
- Fundamental concepts will be covered including dose-response relationships, absorption of toxicants, distribution and storage of toxicants, biotransformation and elimination of toxicants, target organ toxicity, teratogenesis, mutagenesis, carcinogenesis, food allergy, and risk assessment.
- The course will examine chemicals of food interest, such as food additives, natural products, mycotoxins, and pesticides, and how they are tested and regulated. Case studies and special topics related to the above are critically reviewed.

Learning Outcomes:

After completion of the course students are expected to be able to:

1. Understand the basic principles of toxicology.
2. Synthesize an accurate, current picture of the potential toxicity of food components using reference material.
3. Describe the toxic action of food additives and toxicants formed during food preparation
4. Know about the toxicology testing methods used.
5. Describe the action and mechanisms of food derived toxic substances

6. Understand the principles of biotransformation and body elimination of toxic substances
7. Become familiar with the general principles of risk assessment and management and the regulatory actions consequent on it.

Course Content:

1. General principles of toxicology
2. Factors that influence toxicity (naturally occurring, food processing; food chain)
3. Toxicology testing methods
4. Food Safety Assessment: Compliance with Regulations
5. Toxic effects on health; Risk Assessment
6. Epidemiology in Food and Nutritional Toxicology
7. GI-track absorption; distribution and storage of toxicants (target organ toxicity)
8. Metabolism and excretion of toxicants
9. Food Intolerance and Allergies
10. Bacterial toxins
11. Animal toxins
12. Plant toxins and fungal mycotoxins
13. Toxicity of nutrients, food additives, mercury; additives safety assessment
14. Parasites, viruses and prions; emerging food safety issues

Learning Activities and Teaching Methods:

Lectures; Cooperative learning activities, Discussions; Review of literature

Assessment Methods:

Assignments, Tests and Mid-term Exam; Final Exam

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Food and Nutritional Toxicology (Hardcover)	Stanley T. Omaye	CRC	2004	1587160714

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Handbook of Food Toxicology (Food Science and Technology, 119) (Hardcover)	S.S. Deshpande	CRC	2002	0824707605
Handbook of Toxicology, Second Edition (Hardcover)	Michael J. Derelanko Mannfred A. Hollinger	CRC; 2 edition	2001	0849303702
Profiles (Handbook of International Food Regulatory Toxicology) (Hardcover)	G. Vettorazzi	Springer; 1 edition	1981	0852005520
Natural Toxicants in Food (Hardcover)	David H. Watson (Editor)	Blackwell	1998	0849397340
Handbook of Plant and Fungal Toxicants (Hardcover)	J. P. Felix D'Mello	CRC	1997	0849385512
Food Additives Handbook (Hardcover)	Richard J. Lewis	Springer; 1 edition	2005	0442205082
Food Toxicology (Hardcover)	William Helferich (Editor), Carl K. Winter (Editor)	CRC	2000	0849327601
Introduction to Food Toxicology (Food Science and Technology) (Hardcover)	Takayuki Shibamoto, Leonard F. Bjeldanes, Steve Taylor	Academic Press	2006	0126400253
International Food Safety Handbook (Food Science and	Vanderheijden	CRC	1999	0824793544

Technology) (Hardcover)				
Handbook of Food- Drug Interactions (Nutrition Assessment) (Hardcover)	Beverly J. McCabe (Editor), Eric H. Frankel (Editor), Jonathan J. Wolfe (Editor)	CRC	2003	084931531X
Product Safety Evaluation Handbook, Second Edition, (Hardcover	Shayne C. Gad (Editor)	CRC; 2 edition	1999	0824719719
Introduction to Toxicology and Food (Hardcover)	Tomris Altug	CRC; 1st edition	2002	0849314569
Drug Residues in Foods: Pharmacology, Food Safety and Analysis (Food Science and Technology) (Hardcover)	Dimitrio Fletouris (Editor)	CRC; 1st edition	2000	0824789598