

Department of Food Sciences
University of the Punjab, Lahore
Course Outline



Programme	B.Sc. (Hons.) Food Science & Technology	Course Code	FST-104	Credit Hours	3(3-0)
Course Title	Food Safety and Toxicology				
Course Introduction					
<p>This course able to improve the food hunger and provision of safe food in order to achieve food security and improve health status of population.</p>					
Learning Outcomes					
<p>On the completion of the course, the students will:</p> <ol style="list-style-type: none"> 1. Learn about intrinsic and extraneous toxins. 2. They will understand the impact of these toxins on the environment and food safety. 3. The students shall be able to understand the measurement of toxicants and toxicity. 4. They will be able to understand the toxicants in the human body, their absorption, distribution, biotransformation and excretion. 5. Knowledge about the HACCP and ISO-2000 					
THEORY					
Course Content				Assignments/Readings	
Week 1	Unit-I Introduction			Mini ssignment to enlist toxins in food products	
	1.1 Introduction of Toxicity				
	1.2 Routes of toxicity				
	1.3 Dose Response relationship				
Week 2	Unit-II Food Toxicology			Presentation topics assigned	
	2.1 Absorption and distribution of toxins				
	2.2 Translocation of toxins				

	2.3 Concept of Food toxicology	
Week 3	Unit-III Toxicity from Plants	Assignment 1 topics assigned
	3.1 Accidental toxicity	
	3.2 Toxicity from Hemagglutinins and goitrogens	
	3.3 Toxicity from Cyanogens and lythrogens	
Week 4	Unit-I V Toxicity from Animals	Mini assignment to study the effect of BGH on human health
	4.1 Toxicity from honey, Quail and raw eggs	
	4.2 Toxicity from milk	
	4.3 Toxicity from poultry	
Week 5	Unit- V Intrinsic Toxins	Quiz 1 Done
	5.1 Toxicity from Mutton	
	5.2 Toxicity from Fish	
	5.3 Toxicity from fish	
Week 6	Unit- VI Toxicity from Agricultural chemicals	Mini assignment to check the current scenario of accidental toxicity worldwide
	6.1 Toxicity from pesticides	
	6.2 Accidental toxicity and its prevention	
	6.3 Toxicity from fertilizers	
Week 7	Unit-VII Toxicity from processing	Revision Done
	7.1 Toxicity from food processing equipment	

	7.2 Toxicity from food processing operations	
	7.3 Toxicity from plastic Cellulose materials	
Week 8	Unit-VIII Toxicity from packaging	
	8.1 Toxicity from Metal containers	
	8.2 Toxicity from Cellulose material	
	8.3 Toxicity from reused food material	
Week 9	Unit- IX Toxicity from additives and adulterants	
	9.1 Concept of food adulteration	Presentations done
	9.2 Toxicity from food additives	
9.3 Toxicity from food adulterants		
Week 10	Unit- X toxicity from water	
	10.1 Contamination of drinking water	Assignment to check Current worldwide situation of drinking water
	10.2 Current situation of drinking water in Pakistan	
10.3 Effects of contaminated water on human health and WHO guidelines for drinking water		
Week 11	Unit- XI Food allergy and intolerance	Presentations Done
	11.1 Concept of food allergy and food Intolerance	

	11.2 Symptoms, causes and prevention of food allergy	
	8.3 Types of food intolerance	
Week 12	Unit-X I I Terms	Quiz 2 Done
	12.1 Concept of food safety and its importance	
	12.2 Terms and definitions	
	12.3 Clauses of GMPs	
Week 13	Unit-XI I I Good Manufacturing Practices	
	13.1 Clauses of GMPs	
	13.2 Clauses of GMPs	
	13.3 Clauses of GMPs	
Week 14	Unit-X I V HACCP	Mini Assignment to draw HACCP plan for different food items
	14.1.1 Introduction, concept and importance of HACCP	
	14.2 Preliminary steps	
	14.3 Principles of HACCP	
Week 15	Unit-X V Importance of HACCP	Presentations Done
	15.1 Principles of HACCP	
	15.2 Principles of HACCP	
	15.3 Principles of HACCP	
Week 16	Unit- X V I Food Safety Management System	
	16.1 Concept and importance of Food Safety Management System	
	16.2 Terms and definitions	
	16.3 Checklist of ISO-22000	
Textbooks and Reading Material		

- 1.1. Food Research Institute. (2020). Food safety. CRC Press. UK
- 1.2. Motarjemi, Y. & H. Lelieveld. (2013). Food Safety Management: A Practical Guide for the Food Industry. Elsevier Science, USA.
- 1.3. Knechtges, P.L. (2011). Food Safety: Theory and Practice. Jones & Bartlett Learning, USA.
- 1.4. Awan, J.A. & Anjum, F.M. (2010). Food Toxicology. Unitech Communications, Faisalabad-Pakistan.
- 1.5. Schmidt, R.H. & Rodrick, G.E. (2004). Systems for Food Safety Surveillance and Risk Prevention. In: Food Safety Handbook. John Wiley & Sons, Inc. New Jersey, USA.
- 1.6. Helferich, W. & Winter, C.K. (2000). Food Toxicology. Woodhead Publishing Limited, Abington Hall, Abington, Cambridge, UK.
- 1.7. Shibamoto, T., Taylor, S. & Bjeldanes, L. (1993). Introduction to Food Toxicology. Academic Press, London, UK.

Teaching Learning Strategies

1. Class lectures
2. Class discussions
3. Group work and assignments
4. Short videos
5. Quiz
6. Presentations

Assignments: Types and Number with Calendar

1. Assignment topics assigned to students

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Continuous assessment includes Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.

3.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.
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