Food Safety and Toxicology Chem 493

Prerequisites for class: Recommended Chemistry 104 or higher

Instructors:

Dr. Lawrence Duffy
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Lectures: Tuesdays and Thursdays, 3:40 – 5:10 pm, Murie 105

Textbook: Introduction to Food toxicology (2nd edition) by T. Shibamato, LF Bjeldanes, Academic Press/Elsevier

Course description: Introduction to food safety and toxicology includes the understanding of the entire range of toxic compounds found in foods-whether naturally occurring or used by industry. Topics include: mechanisms of regulation of xenobiotic activation and deactivation; developments in the modes of action and impact of natural toxins in food plants; a comprehensive review of the issues surrounding dioxins; the function of antioxidants and their toxicological aspects; phytochemicals, their beneficial effects and the modes of action of this growing group of nutraceuticals from food plants; diet and drug interactions.

Learning Objectives:

Upon successful completion of this course, students will

1. be able to demonstrate a fundamental knowledge of processes and endpoints in the human body associated with exposure to toxic agents in the human food chain;
2. be able to demonstrate a fundamental knowledge of risk assessment and food safety as it is applied to toxic agents in the human food chain;
3. acquire mastery with the major issues, concepts, and subject areas in food toxicology;
4. acquire mastery of sourcing and synthesizing information in aspects of Food Chemistry, Toxicology, and Microbiology as it applies to chemical food safety and food toxicology.

Class Lecture Plan

Week	Lecture Title
1	Introduction to Food Toxicology
2	Some Concepts of Toxicology
3	Dose Response
4	Absorption and Distribution
5	Storage and Excretion
	Exam 1
6	Acute and Chronic Toxicity; and Teratogenesis and Mutagenesis
7	Biotransformation biomarkers
8	Midterm Exam
9	Carcinogen
10	Natural toxins
11	Phytochemicals Caffeine
12	Food Contaminants Heavy metals and Mercury in the Human Food Chain
13	Pesticides Organophosphates
14	Food Additives Preservatives Antioxidants
	Final Exam

Grading Scheme: Based on a total of 400 points

Term exam 1	100 points
Term exam 2	100 points
Final exam	100 points
Term paper	50 points
Participation	50 points
Total	**400 points**

Course Policies:

Attendance:
Regular attendance is expected for discussions and participation.

Department Policy on Cheating:
The Chemistry & Biochemistry Department Policy on Cheating is: *"Any student caught cheating will be assigned a course grade of F. The student's academic advisor will be notified of this failing grade and the student will not be allowed to drop the course."*

Plagiarism:
Plagiarism is defined as the use of "other" intellectual property without proper reference to the original author. Intellectual property includes all electronic (internet0, spoken or print media. Students are expected to cite all sources used in oral and written presentations. Cases of plagiarism will be taken seriously with a grade of 0 for the particular assignment. Severe cases may be referred to the Department Chair or Dean. Class failing will be considered.

Disabilities:
Students with a physical or learning disability are required to identify themselves to Mary Matthews in the Disability Services office, located in the Center for Health and Counseling in order to receive special accommodations. The student must provide documentation of the disability. Disability Services will then notify me of special arrangements for taking tests, working homework assignments, and doing lab work.

Support Services:
Support Services will be provided by the University of Alaska Library System, online resources and the instructor. Additional services are available through Student Support Services
http://www.uaf.edu/sssp/

Consult the UAF academic calendar for final exam and other important dates.