

## 《食品毒理与安全》课程教学大纲

课程基本信息 (Course Information)						
课程代码 (Course Code)	FS320	*学时 (Credit Hours)	32	*学分 (Credits)	2	
*课程名称 (Course Name)	(中文) 食品毒理与安全					
	(英文) Food Toxicology and Safety					
课程性质 (Course Type)	Major Characteristic Course					
授课对象 (Target Audience)	Food Science and Technology and related majors					
授课语言 (Language of Instruction)	English					
*开课院系 (School)	School of Agriculture and Biology					
先修课程 (Prerequisite)	Organic Chemistry, Biochemistry, Food Chemistry, Microbiology, etc.					
授课教师 (Instructor)	Drs. Chunlei Shi and Xiaomin Yao		课程网址 (Course Webpage)			
*课程简介 (Description)	<p>此课程是针对食品科学与工程专业的本科专业特色课程。旨在研究食品中可能存在的、威胁人类健康的有害因素及其预防措施，以提高食品的卫生质量、保护食用者饮食安全的科学。通过本课程的学习，使学生具备一定的毒理学基础知识，学会应用所学的理论知识来分析解决所遇到的实际问题，为今后独立工作奠定坚实的基础。</p>					
*课程简介 (Description)	<p>This course is the characteristic of food science and technology major. Teaching objectives: To study the possible existence of food, the threat of human health and the prevention of harmful factors, in order to improve the quality of food hygiene and food safety. Through the study of this course, the students have a certain basic knowledge of toxicology, learn to apply the theoretical knowledge to solve the practical problems encountered, and lay a solid foundation for the future work independently.</p>					
课程教学大纲 (Course Syllabus)						
*学习目标(Learning Outcomes)	<ol style="list-style-type: none"> <li>1. To Understand the basic principle and application of food toxicology (A3)</li> <li>2. To understand the basic concept of food toxicology and the general process of food safety evaluation (A5.1, A5.4)</li> <li>3. Through the course practice, to foster the ability to understand and find problems (B2, C2) and the team cooperation ability to solve problems (A5.3, B3, C1)</li> </ol>					
*教学内容	教学内容	学时	教学方式	作业及要求	基本要求	考查方式

进度安排及要求 (Class Schedule & Requirements)	Introduction to Food Toxicology	2 credit hours	Classroom Teaching combined with Group Discussion	Homework	Toxicology overview; Toxicology development history; The present situation of toxicology; The development tendency of toxicology; Food toxicology.	Quiz
	Concepts of Food Toxicology	4 credit hours	Classroom Teaching combined with Group Discussion	Homework	Toxicants and toxicity; Dose; Response; Dose-response relationship; Adverse effect; Exposure pathways and influence factors; Kinetics of adverse effect; AMDE process.	Quiz
	Toxicity of Endogenous Plant Toxicants	2 credit hours	Classroom Teaching combined with Group Discussion	Homework	Blood agglutinin; Enzyme inhibitor. Alkaloids; Phenol; Terpenoids.	Quiz
	Toxicity of Endogenous Animal Poisons	2 credit hour	Classroom Teaching combined with Group Discussion	Homework	Botulinum toxin; Shellfish toxins; Fish poison; Biogenic amine.	Quiz
	Toxicity of Mycotoxins	2 credit hour	Classroom Teaching combined with Group Discussion	Homework	Aflatoxin; Ochratoxin; Trichothecenes (Vomitoxin, T2 toxin); Fumonisin; Patulin; Psoralen.	Quiz
	Toxicity of Environmental Toxicants in Food	2 credit hours	Classroom Teaching combined with Group Discussion	Homework	Pesticides; Veterinary drugs; Toxic chemical elements; PCBs;	Quiz

			Discussion		Dioxin.	
	Toxicity of Toxicants Formed During Food Processing	2 credit hours	Classroom Teaching combined with Group Discussion	Homework	N-Nitrosamine; Polycyclic aromatic hydrocarbons; Acrylamide; Maillard reaction products; Amino acid pyrolysates; Lysinoalanine; Food additives and supplements.	Quiz
	Routes of Xenobiotics in an Organism	4 credit hours	Classroom Teaching combined with Group Discussion	Homework	ADME	Quiz
	Toxic Response	4 credit hours	Classroom Teaching combined with Group Discussion	Homework	Direct injury of cell or tissue; Biochemical damage; Neurotoxicity; Immunotoxicity; Teratogenicity; Genetic toxicity (genotoxicity); Carcinogenicity; Endocrine disruption	Quiz
	Analytical Toxicology: Determination of Foreign Compounds	4 credit hours	Classroom Teaching combined with Group Discussion	Homework	Hyphenated chromatographic and spectrophotometric methods; Immunological methods for sample preparation and analysis;	Quiz
	Evaluation of Substance Toxicity	2 credit hours	Classroom Teaching combined with Group Discussion	Homework	Epidemiological studies; Animal tests; Cell culture test; Computer calculations	Quiz
	Biotechnology in Evaluation of Food Toxicity	2 credit hours	Classroom Teaching combined	Homework	Toxicology goes molecular; PCR-based	Quiz

			with Group Discussion		technology; Programmed cell death; ELISA; Flow Cytometry Analysis; DNA hybridization; Gene chip; Transgenic animal	
*考核方式 (Grading)	<p>Final grade is determined by Attendance, Regular grade, and Final Examination: Attendance: 20%. Assessed by learning attitude. Regular grade: 30%. Assessed by participation of class activities, oral and writing communication ability, and quizzes. Final examination: 50%. Assessed by comprehension of basic principle and application of toxicology, problem solving and practice ability, etc.</p>					
*教材或参考资料 (Textbooks & Other Materials)	<p>Textbook: 1. Principles of Food Toxicology, Tonu Pussa , CRC Press, 2008, 1<sup>st</sup> edn, ISBN 0-8493-8090-1 (使用 1 届,外文教材,非国家级规划教材) .</p> <p>Reference books: 1. Food Toxicology, Liu Ning, Shen Minghao, China Light Industry Press, 2010, 1<sup>st</sup> edn, ISBN 7-5019-5023-7. 2. Food Toxicology, Wang Huili, Jiang Yueming, Hefei University of Technology Press, 2017, 1<sup>st</sup> edn, ISBN 978-7-5650-3440-4.</p>					
其它 (More)						
备注 (Notes)						

备注说明:

1. 带\*内容为必填项。
2. 课程简介字数为 300-500 字; 课程大纲以表述清楚教学安排为宜, 字数不限。