

EH502 FUNDAMENTALS OF TOXICOLOGY
Course Description and Syllabus
Fall 2006

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Office hrs: Tu/Th 3:30 – 4:30 – Other hours by appointment

Class meets Tuesdays and Thursdays at 2:10 – 3:25 in Microbiology A108.

Topics and reading assignments In Casarett & Doull's Toxicology, 6th edition

Date	Class	Topic	Pages	
August 22, Tu	Lecture 1	Introduction	Ch. 1	Tjalkens
August 24, Th	Lecture 2	Dose-Response	Ch. 2	Tjalkens
August 29, Tu	Lecture 3	Structure-Function	Lecture only	Tjalkens
August 31, Th	Lecture 4	Toxicokinetics 1	Ch. 5	Tjalkens
September 5, Tu	Lecture 5	Toxicokinetics 2	Ch. 7	Tjalkens
September 7, Th	Lecture 6	Toxicodynamics 1	Ch. 3, p35-57	Carbone
September 12, Tu	Lecture 7	Toxicodynamics 2	Ch. 3, p57-78	Tjalkens
September 14, Th	Lecture 8	Biotransformation 1	Ch. 6, p133-196	Carbone
September 19, Tu	Lecture 9	Biotransformation 2	Ch. 6, p196-219	Tjalkens
September 21, Th	Exam 1			
September 26, Tu	Lecture 10	Immunotoxicology	Ch. 12	Tjalkens
September 28, Th	Lecture 11	Pulmonary Toxicology	Ch. 15	Tjalkens
October 3, Tu	Lecture 12	Cardiovascular Toxicology	Ch. 18	Legare
October 5, Th	Lecture 13	Dermal Toxicology	Ch. 19	Tjalkens
October 10, Tu	Lecture 14	Reproductive Toxicology 1	Ch. 20	Hanneman
October 12, Th	Lecture 15	Reproductive Toxicology 2	Ch. 21	Hanneman
October 17, Tu	Lecture 16	Renal Toxicology	Ch. 14	Legare
October 19, Th	Lecture 17	Neurotoxicology 1	Ch. 16, p535-542	Tjalkens
October 24, Tu	Lecture 18	Neurotoxicology 2	Ch. 16, p543-558	Tjalkens
October 26, Th	Lecture 19	Hepatotoxicity	Ch. 13	Petersen
October 31, Tu	Exam 2			
November 2, Th	Lecture 20	Radiation Toxicology	Ch. 25	Johnson
November 7, Tu	Lecture 21	Pesticides	Ch. 22	Hanneman
November 9, Th	Lecture 22	Developmental Toxicology	Ch. 10	Tjalkens
November 14, Tu	Lecture 23	Toxicogenomics	Lecture only	Hanneman
November 16, Th	Lecture 24	Mutagenesis	Ch. 25	Hanneman
November 28, Tu	Lecture 25	Carcinogenesis	Ch. 8	Legare
November 30, Th	Lecture 26	Toxicants derived from infectious agents	Lecture only	Beard
December 5, Tu	Lecture 27	Risk Assessment	Ch. 3	Volckens
December 7, Th	Lecture 28	Forensic Toxicology	Ch. 31	Kelly
Finals Week	Exam 3			

EH 502 FUNDAMENTALS OF TOXICOLOGY CONT.

COURSE DESCRIPTION

Course is designed to teach fundamental principles of toxicology with an emphasis on target organ toxicity and mechanisms of disease. Topics to be discussed: toxicokinetics and toxicodynamics, biotransformation of xenobiotic compounds, classes of pharmaceutical and environmental toxicants, toxicogenomics, mutagenesis and carcinogenesis, and forensic toxicology.

COURSE EVALUATION

Exam 1	30%
Exam 2	30%
Final Exam	30%
Problem Set	5%
Written critique of research paper *	5%

* Papers due at the beginning of class on November 30th. Student will write a 5 page (min) critique of a recent article from the primary biomedical scientific literature pertaining to toxic mechanisms in human disease (paper requires pre-approval of instructor). Details to be discussed in class.

LEARNING OBJECTIVES – upon completion of this course, the student should be able to:

1. Explain the impact of absorption, metabolism, distribution and excretion on the toxic effect of chemicals.
2. Describe the major classes of environmental chemicals and their potential toxic effects.
3. Understand the mechanisms of toxicity of several classes of drugs and chemicals on their primary target organ systems.
4. Describe the nature and causes of various toxicant-induced diseases of organ systems, including the central and peripheral nervous system.
5. Identify the major concepts of human health risk assessment.
6. Understand the basic elements of clinical and forensic toxicology.

Honesty Policy:

Exams must be completed individually. No group work or outside assistance is allowed. Any student found to have engaged in academic dishonesty (i.e. cheating, in any form, on an exam) will receive a zero on the exam and be subject to further University disciplinary action.

Make-Up Exam Policy:

Exams will be taken on the scheduled dates and times. If there is an extreme, unforeseen emergency on the day of the exam (e.g., illness requiring a doctor's visit, death in the family, etc.) contact your instructor (by telephone or e-mail) **within 24 hours of the scheduled exam**. If you are unable to reach your instructor, please leave a message with the Environmental Health office: 491-5003. You must provide WRITTEN DOCUMENTATION of the unforeseen emergency before you can take a make-up exam. Attempts to subvert this policy, e.g., by claiming a death in your family which did not, in fact, occur, is considered academic dishonesty; please see above. The course coordinator, if necessary, will make final decisions about make-up exams.

ADA Statement:

The Americans with Disabilities Act requires that reasonable accommodations be made for students with disabilities. If you need such assistance, please contact your instructor as soon as possible.