

ENST 5830 - Toxicology and Risk Assessment

Fall 2026 Syllabus, Section 01, CRN 43543,

Credit hours: 3

Instructor

Felicia Armstrong

Email: fparmstrong@ysu.edu

Public Instructor Information

Instructor Title: Professor

Instructor Professional Qualifications: PhD (Environmental) Soil Science, Oklahoma State University, 2003; MS, Plant & Soil Science, Alabama A&M University, 1996; BS, Biology, University of Dayton, 1987

Qualified Environmental Professional (QEP), 2015, Board for Global EHS Credentialing (BGC)

Instructor Office Location: 2120 Moser Hall

Instructor Office Phone: 330-941-1385 or 330-941-3612

Course Description

5830. Toxicology and Risk Assessment. A study of environmental toxicology of chemicals, primarily anthropogenic pollutants, and their effect on humans and ecosystems. Includes transportation of pollutants in the environment, biochemical reactions, toxicity testing methods, and dose-response assessment. Continues with an introduction in the process of estimating risk and the perception of those risks including how risk is used to set environmental standards. Prereq.: junior or senior with 9 semester hours in 3700 level or above in ENST, CHEM, BIOL, GEOL or CEEN. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Calculated Risks, 2nd Edition	Joseph V. Rodricks	978-0521783088

Calculated Risks: The Toxicity and Human Health Risk of Chemicals in our Environment, 2nd Edition by Joseph V. Rodricks, Cambridge University Press, 2006, ISBN 978-0521783088

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Tentative Schedule of Topics and Assignments

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Tue	8/25		Introduction to Risk Assessment	
Thu	8/27	Chapter 1	Chemical Review	
Tue	9/1	Chapter 2	ADME	
Thu	9/3	Chapter 2	ADME	Discussion 1
Tue	9/8	Chapter 3	Methods in toxicity testing	
Thu	9/10	Chapter 3	Methods in toxicity testing	Discussion 2
Tue	9/15	Chapter 3	Toxicology: Dose-Response (RfD)	Chapter 3
Thu	9/17	Chapter 4	Reproductive Toxicology & Teratology and Other Toxic Effects	Quiz 1
Tue	9/22	Chapter 5 & 6	Carcinogens – SF	
Thu	9/24	Chapter 4	Toxicology: Toxicokinetic, Site of Toxic Action	

Tue	9/29	Chapter 4	Toxicology: Toxicokinetic, Site of Toxic Action	
Thu	10/1		Exam 1	Exam
Tue	10/6	Chapter 7	Risk Assessment : Hazard ID	
Thu	10/8		Chemical Transport Models – Bioscreen	
Tue	10/13		Bioscreen Review	Bioscreen Homework Due
Thu	10/15		Chemical Transport Models - J&E Model	
Tue	10/20		J&E Model Review	J&E Model Homework Due
Thu	10/22	Chapter 8 & 9	Risk Assessment: Dose-Response Assessment (IRIS Database), RfD, slope factors	
Tue	10/27		Exam 2	IRIS Database Homework Due Exam 2
Thu	10/29	Chapter 7 & 8	Risk Assessment : Exposure Assessment, Intake/CDI	
Tue	11/3	Chapter 8 & 9	Risk Assessment : Risk Characterization Calculations: Risk, hazard quotient	Quiz 2 CDI Homework Due
Thu	11/5	Chapter 8 & 9	Calculations: Risk, hazard quotient Risk Assessment : Toxicity - Multiple Chemical Assessment	HQ & Risk Homework Due
Tue	11/10		Overview of Ecological Risk Assessment Exam Review	
Thu	11/12		Exam 3	Exam
Tue	11/17		Final Project Introduction	
Thu	11/19		Final Project Questions	
Tue	11/24		Graduate Student Presentations	Graduate student papers due
Thu	11/26		No Class, Holiday	
Tue	12/1		Graduate Student Presentations	
Thu	12/3		Final Project Meeting with Instructor	
Tue	12/8	No class, Finals Week		
Thu	12/10	No class, Finals Week		Final Project Presentations: Friday, 5:15-17:15 pm

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.