INDUSTRIAL HYGIENE CHEMICAL HAZARD EVALUATION

Instructor: **Carl Farley, carl.farley@usu.edu, 435-797-2566**
Office Hours: **Tuesday and Thursday, 9:00 - 11:00**
Lectures: **BNR 314, 7:30 - 8:45, Tuesday and Thursday**
Labs: **BNR 14, 2:00 - 4:50 Tuesday or Thursday**

Introduction:

This course teaches a key aspect of industrial hygiene practice: the evaluation of chemical exposures. Typically this involves exposure monitoring (i.e., sampling) and subsequent evaluation of the data to assess the actual exposure. Results are compared to applicable occupational exposure limits, such as the ACGIH TLVs. Information must be communicated through written & oral reports.

Objectives:

After this class, students will know how to conduct chemical exposure monitoring, and they will gain applicable technical skills and workplace experience. Students will complete a monitoring project at a local worksite, including:

- selection of the proper sampling method
- preparation and calibration of all equipment
- sample collection
- submitting samples to a laboratory for analysis
- preparation and calibration of all equipment
- making an oral presentation to the class

Textbooks:

The course text is *The Occupational Environment - Its Evaluation and Control*, also used for PUBH 4310 and PubH 4330. We will use the new **Third** Edition since it is available now. We will also use the ACGIH TLV book. Older copies are available in the lab, but students get a new book if they join the ACGIH.

Grading:

First exam	100 points
Second exam	100 points
Final exam	100 points
Sampling Project	125 points
Lab & assignments	75 points
Homework/Quizzes	75 points
Total	575 points

Labs:

Students must register for a laboratory session. Labs will be in BNR 14.

Fees:

$100 Lab fees assessed for the class are used to purchase supplies and to maintain equipment used in the lab.

Project:

The sampling project is a major component of the course. Students are expected to perform at a professional level, and to produce a professional-quality report. The project will require students to spend substantial effort outside of class as their group cooperates with preparation, sampling, and reporting.

Given constraints of the academic schedule, it is especially important to keep "on track"

- Sampling projects should be completed by mid-march (lab results take about 2 weeks to receive)
- Groups must meet with the instructor by the end of March and submit their report outline
- The complete report (not a rough draft) is due April 10, submitted in printed and electronic format
- The revised final version is due April 19, submitted in printed and electronic format

Date and Day		**Topic**	**References**	**Assignments/Labs**
1/9/2018	Tue	Intro, project discussion, PPE	[1]Text 39,40	***No labs this week***
1/11/2018	Thu	PPE, Occupational Exposure Limits	[1]Text 4, TLVs	
1/16/2018	Tue			#A PPE
1/18/2018	Thu	Evaluating worker exposure	[1]Text 7	
1/23/2018	Tue	Sampling and Analytical Methods	[1]Text 13, [2]NMAM, etc.	#1 OELs
1/25/2018	Thu			
1/30/2018	Tue	Airflow Calibration & Air Density	[1]Text 15	#2 Calibration/Rotameters
2/1/2018	Thu			
2/6/2018	Tue	Gas and Vapor Sampling	[1]Text 11,12	#3 Methods
2/8/2018	Thu			
2/13/2018	Tue	Catch-up or Review		#4 Open
2/15/2018	Thu	**First midterm exam**		
2/20/2018	Tue	***Attend Monday Classes***		***No labs this week***

2/22/2018	Thu	Aerosol Sampling	[1]Text 14	
2/27/2018	Tue			#5 Gases & vapor
3/1/2018	Thu	Direct-reading tubes/instruments	[1]Text 17	
3/6/2018	**Tue**	Spring Break		No labs this week
3/8/2018	**Thu**			
3/13/2018	Tue	Direct-reading tubes/instruments		#6 Aerosols
3/15/2018	Thu	Written reports and presentations	[1]Text 51	
3/20/2018	Tue	Sample shipping & handling	[3]OTM	#7 Direct Reading
3/22/2018	Thu	Indoor Air Quality, Bioaerosols	[1]Text 18, 19	
3/27/2018	Tue			#8 Shipping & handling
3/29/2018	Thu	**Second Exam**		
4/3/2018	Tue	Asbestos sampling	Handout	#9 IAQ **Revised outline due**
4/5/2018	Thu	Wipe and bulk sampling	[4]OTM	
4/10/2018	Tue	Statistical considerations	[5]OTM, [6]NIOSH	#10 Asbestos
4/12/2018	Thu	Sampling strategy	[1]Text 9, [6]NIOSH	Sampling Reports due
4/17/2018	Tue	IH Audits	[1]Text 42	#11 Statistics
4/19/2018	Thu	Student presentations		
4/24/2018	Tue	Student presentations		#12 Sampling, practical demostrations **Revised report due**
4/26/2018	Thu	Student presentations		
5/3/2018	**Thu**	**Final Examination**		

[1]Third edition of The Occupational Environment - Its Evaluation and Control

[2]NIOSH Manual of Analytical Methods

[3]OSHA Technical Manual, Section II Chapter 1

[4]OSHA Technical Manual, Section II, Chapter 2

[5]OSHA Technical Manual, Section II Chapter 1, APPENDIX II:1-6

[6]Occupational Exposure Sampling Strategy Manual DHHS (NIOSH) Publication No. 77-173

Students with physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, 797-2444 voice, 797-0740 TTY, or toll free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.