

Course Coordinator:

Instructor: Carol A. Wells, MS, CIH, CSP
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NOTE: ALL CORRESPONDENCE WITH LECTURE AND LAB CLASSES WILL BE THROUGH YOUR MIX EMAIL.

Philosophy of the Course:

The philosophy of the course is to teach students the basic tenets of industrial hygiene and to impress upon them their responsibility as health and safety professionals to anticipate, recognize, evaluate and control those environmental factors or stresses, arising in or from the workplace, which may cause sickness, impaired health and well being, or significant discomfort and inefficiency among workers or among the citizens of the community.

Objectives of the Course:

1. Identify agents, factors, and stressors generated by and/or associated with defined sources, unit operations, and/or process.
2. Give students the academic experience necessary for them to apply the basic principles of industrial hygiene (i.e. anticipation, recognition, evaluation and risk control methods) to major classes of occupational stressors including gases and vapors, particulates, noise, temperature extremes, ionizing and non-ionizing radiation, ventilation control principles and use and selection of personal protective equipment-to include respiratory protective equipment.
3. Introduce students to basis industrial hygiene sampling equipment, techniques and procedures commonly employed in the practice of industrial hygiene and safety management
4. Give students the opportunity to use and become familiar with basis industrial hygiene exposure assessment instrumentation. Give students the ability to apply industrial hygiene principles; to communicate with peer industrial hygienists; and to critically review industrial hygienist reports that may be provided to their future employers.

Student Learning Outcomes for the Course:

Students will be able to:

1. Implement an industrial hygiene walkthrough survey and hazard assessment strategy.
Assessment: Homework and exam.
2. Recognize major classes of occupational and environmental contaminants and how to apply to them the basic industrial hygiene tenets of anticipation, recognition, evaluation and control.
Assessment: Toxicology Case study, Exam.
3. Quantitatively analyze data using scenarios of exposures and to reduce sampling and analytical data to estimate time-weighted average exposures.
Assessment: Interaction and completion of Analytical Request with an AIHA accredited Laboratory; Writing Skills- Notification of a personal overexposure; Quizzes and Exams.

4. Correctly use and handle basic industrial hygiene assessment and analysis instrumentation.
Assessment: Each student must compete -Laboratory Instructional Field Guide; Monthly Practicum to demonstrate Laboratory Instructional Guide to date; Exams.
Understand the professional and ethical responsibilities and characteristics of the Industrial Hygiene profession to protect the health and safety of working men and women in global societies.
Assessment: Abstract on OSHA webpage assignment.
5. Understand the types and selection of Personal Protective Equipment used in practice; particularly respirators and to be able to use the basic types of quantitative and qualitative fit test equipment.
Assessment: In-Class Fit-Testing of fellow students-with report sheet for validation.

Method of Instruction:

SAFM 640 includes both a lecture and at least 4 laboratory practicum sessions. The lecture experience incorporate three hours of lecture each week of the semester. The laboratory practicum incorporates three hours of laboratory each month of the semester. The majority of the laboratory experiences are demonstrations in class. Students are to develop a while a few experiences are by demonstration (e.g. measuring ionizing radiation).

Texts:

Recommended Lecture Text: Fundamentals of Industrial Hygiene, 6th Edition (2012); Edited by B. A. Plog, J. Niland and P. J. Quinlan; Published by the National Safety Council. ISBN-10: **0879123125**
| ISBN-13: **978-0879123123**

Grading Elements and Weighting:

Exam I	100points
Exam II	100points
Final	120 points
2 Quizzes	70 points
Case Study-Occupational Hygiene	100 points
Homework	300points
Laboratory Manual	150 points

TOTAL 940

Statement on Social Justice:

West Virginia University is committed to social justice. I concur with that commitment. I expect to foster a nurturing learning environment that is based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

Statement on Disability Accommodation:

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, you must make appropriate arrangements through Disability Services (293-6700). They will identify the nature of the accommodation your disability requires and inform me of appropriate accommodations.

Statement on Attendance: Attendance is required if student wishes to achieve the maximum class benefit

WVU recognizes the diversity of its students, many of whom must be absent from class to participate in religious observances. Please notify me.

ECampus

Course lecture materials and other background materials for the class are on ECampus

The easiest way to access ECampus is through your mix account: <http://www.mix.wvu.edu>. (ECampus can be accessed by using your mix User Id and password.)

Schedule of Lectures

Class Date	Topics	Homework/Assignments
Week 1 -Jan 9	FIH: Ch 1 –Introduction to Industrial Hygiene Discipline Fundamentals of Industrial Hygiene – FIH readings: FIH: Ch 1 Basics of Hazard Recognition and Ch 23 The Industrial Hygienist	<ul style="list-style-type: none"> • Definitions – Hazards and Standards -60 pts Homework • Risk Matrix- identifying and categorizing highest risks during Marcellus Shale drilling job operations -50 pts-
Week 2 - Jan 16	<i>Health Review</i> FIH: Chapter 2,3,4 5, overview	<ul style="list-style-type: none"> • 3 abstracts of Regulatory standards - 90
Week 3 –Jan 23	: FIH 15Toxicology FIH Ch 18 Air-Sampling Instrumentation	<ul style="list-style-type: none"> • Toxicology Homework- Case studies group assigned for last class
Instrumentation Practicum To Be Announced	Calibrations/Air Contaminants. OSHA Technical Manual http://www.osha.gov/dts/osta/otm/otm_toc.html	Draft of Technical Lab Sheet – Air Contaminants due.
Class 4 –Jan 30	FIH: Ch 7 - Sampling and Controlling Particulates FIH Ch 18 Air-Sampling Instrumentation	<ul style="list-style-type: none"> • Homework • Standard IH Conversions - 50 • Memo for instant read tubes
Class 5-Feb 6	FIH: Ch 7 - Gases, Vapors and Solvents FIH Ch 16 Evaluation Instrumentation- Colorimetric tubes	Calibration and Use of Air Sampling Equipment-Sampling for Particulates <ul style="list-style-type: none"> • NIOSH analytical Methods-OSHA reference Methods.
<i>Class 6</i> -Feb 13	TEST #1 Industrial Hygiene Industrial Hygiene Calculations cond't	CSP/CIH Review Questions Chemistry /IH – 55 points Memo for instant read tubes
	Instrumentation Practicum	Draft of Technical Lab Sheet due.
Class 7- Feb 20	FIH Ch 19 Direct Reading Instrumentation Compliance with the confined space standard	In-Class “Confined Space Air Contaminant Testing Requirements. “ Introduction to Scientific Method Laboratory Report Writing.
Class 8- Feb 27 03/4/12	FIH: Ch 4 & Ch 9 - Introduction to Industrial Noise and OSHA Hearing Conservation Programs	Homework: Sound Survey Sheets and Laboratory 50 points due two weeks from this class

Class 9-Mar 6	Instrumentation Practicum Lab test	
March 10 Spring break	Spring Break,	
Class 10-Mar 20	Thermal Extremes and Indoor air quality	Use of Quest – WBGT instruments. Metabolic Calculations and WBGT survey sheet due in class
Class 11-Mar27	FIH: Ch 10 - Introduction to Ionizing Radiation FIH: Ch 12 - Introduction to Non-ionizing Radiation	In- Class Measurements of N.O.R.M Using Radiation Survey Meter-
Class 12- Apr3	FIH: Ch 18 & 19 - Introduction to Dilution and Local Exhaust Ventilation 1910.134 OSHA's Respirator Standard	Ventilation Survey Sheet Use of Hot-Wire Anemometers, due in class
Class 13- Apr 10	Lecture Notes - Classes and types of RPE. Fit Testing Demonstration respirator Fit-testing Laboratory Practicum to date.	Each Class Mate is to Demonstrate Fit –Testing and provide Field Sheet.
Class 14-Apr 17	Case Study Presentations-or Guest Speaker	<i>Peer-Review and analysis of Case Study</i>
Class 15- Apr FINAL EXAM TO BE ANNOUNCED	FINAL EXAM TO BE ANNOUNCED	FINAL EXAM TO BE ANNOUNCE

NOTE: Additional assignments may be required, objectives may be added or revised, field trip may be scheduled –should the opportunity arise.