

Course Syllabus

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Course Goals

Overall Objective: to provide an introduction to the principles and practice of occupational hygiene for students not majoring in this subject area. Occupational hygiene is concerned with the *Anticipation, Recognition, Evaluation and Control* of work place hazards to health and safety. These functions all require a sound understanding of industrial toxicology, methods of exposure measurement, behavior of chemical and physical agents in the environment, the application of guidelines and standards, and technical and administrative approaches to controlling risks from these exposures, topics that form the basic elements of the course.

Course Objectives:

Upon completing the course, each student should expect to:

1. Describe the nature of the health effects associated with exposure to industrial agents;
2. Be familiar with the standard methods for measuring and evaluating worker exposure to chemical and physical agents and identify strengths and weaknesses to typical approaches;
3. Apply and interpret health and safety standards and regulations for the work place environment;
4. Apply feasible approaches to controlling worker exposure to health and safety hazards to a specific industrial setting.
5. Describe how the social and economic context of work affects workers' and employers' ability to control threats to health and safety.

Course Format

Instruction will consist of one to two lecture sessions per week, with four in-class problem solving exercises. Students are expected to view materials, read texts and solve problems on assigned topics between each class. In-class exercises will require assembling and reading background materials in advance, with group problem-solving in class and individual written responses to selected material.

Course Requirements

1. Reading assignments will be made for most lectures and should be completed prior to the lecture. All required reading will be from the text, from public domain publications on the internet, or from the TLV Booklet (required texts listed below.) The student is held responsible for the material covered in the reading assignments.
2. Active participation in the problem-solving exercises is expected. Each exercise will involve reading background material provided, finding and assembling supplemental information needed to solve the problems, and responding with a written assignment. In-class discussions will be conducted in assigned groups and with the whole class.
 - 2a. Each student will answer a few short (e.g., 1 paragraph) questions about each exercise. Due one week after the in-class exercise.
 - 2b. For two of the four exercises, each student will develop a comprehensive paper addressing the background, analysis and recommendations, with associated background material. A final version is due two weeks after the class. Undergraduate papers will be approximately 5 pages. Graduate student papers will be approximately 7 pages, include at least five references from the peer reviewed literature, and will delve into one aspect of the problem in more detail.
3. One final exam will be given to test students on integrative concepts of the quarter, and specific information delivered on the final three class topics.

Evaluation

% of grade

Classroom preparation and participation	20
2 Exercise short answer assignments	20 (10% each)
2 Comprehensive papers	40 (20% each)
Final Exam	20

Required Texts

- Morgan, M.S., Horstman, S.W. *Introduction to Occupational Hygiene*. 2013. Available free of charge on course web site, as a series of pdf documents.
- ACGIH TLV Booklets, 2015 Edition: Provided free of charge.
- Additional readings provided as pdfs on course website

Suggested General References

These are available for use in the Department Library F-453, or for loan in F-226:

- American Conference of Governmental Industrial Hygienists. Documentation of the Threshold Limit Values. 7th Edition. 2001. (Later supplements are included.)
- Anna DH, ed. The Occupational Environment - Its Evaluation, Control and Management. Third Edition. Fairfax, VA: American Industrial Hygiene Association, 2010.
- Dinardi SR. Calculation Methods for Industrial Hygiene. New York: Van Nostrand Reinhold, 1995.
- Finkel AJ. Hamilton and Hardy's Industrial Toxicology. 4th Ed. Littleton, MA: PSG Publishing Co. 1983.
- Finucane EW. Definition, Conversions, and Calculations for Occupational Safety and Health Professionals. Boca Raton, FL: Lewis Publishers, 1993.
- Perkins JL. Modern Industrial Hygiene. Volume I. Recognition and Evaluation of Chemical Agents. New York: Van Nostrand Reinhold, 1997.
- Berger EH, et al, eds. The Noise Manual. 5th edition. Fairfax, VA: American Industrial Hygiene Association, 2000.
- Plog, B.A., ed., Fundamentals of Industrial Hygiene, 4th Ed. National Safety Council, Chicago, IL, 1996.
- Popendorf WS. Industrial Hygiene Control of Chemical Hazards. Boca Raton, FL: CRC Press, 2006.

ACADEMIC NOTICES

Academic Integrity (<http://sph.washington.edu/students/academicintegrity/>
(<http://sph.washington.edu/students/academicintegrity/>)

Students at the University of Washington (UW) are expected to maintain the highest standards of academic conduct, professional honesty, and personal integrity.

The UW School of Public Health (SPH) is committed to upholding standards of academic integrity consistent with the academic and professional communities of which it is a part. Plagiarism, cheating, and other misconduct are serious violations of the University of Washington **Student Conduct Code** (WAC 478-120). We expect you to know and follow the university's policies on cheating and plagiarism, and the **SPH Academic Integrity Policy**. Any suspected cases of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington **Community Standards and Student Conduct** website.












Access and Accommodation

Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent

disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206-543-8924 or uwdrs@uw.edu (<mailto:uwdrs@uw.edu>) or disability.uw.edu (<http://disability.uw.edu>). DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

Course Summary:

Date	Details	
Thu Sep 28, 2017	 Session 1: What's old, What's New? (https://canvas.uw.edu/courses/1116971/assignments/3857028)	due by 10:30am
Tue Oct 3, 2017	 Session 2: Toxicology and Risk (https://canvas.uw.edu/courses/1116971/assignments/3857030)	due by 10:30am
Thu Oct 5, 2017	 Session 3: Guidelines and Standards (https://canvas.uw.edu/courses/1116971/assignments/3857031)	due by 10:30am
Tue Oct 10, 2017	 Session 4: PBL #1 Developing a Standard (https://canvas.uw.edu/courses/1116971/assignments/3857032)	due by 10:30am
	 Session 4: PBL #1: Standards (https://canvas.uw.edu/courses/1116971/assignments/3857033)	due by 10:30am
Thu Oct 12, 2017	 Session 5: Gas and Vapor Sampling (https://canvas.uw.edu/courses/1116971/assignments/3857034)	due by 10:30am
Tue Oct 17, 2017	 Session 6: Aerosols (https://canvas.uw.edu/courses/1116971/assignments/3857035)	due by 10:30am
Thu Oct 19, 2017	 Session 7: Real Time Monitoring (https://canvas.uw.edu/courses/1116971/assignments/3857036)	due by 10:30am
Tue Oct 24, 2017	 Session 8 PBL 2: Measurement Assignment (https://canvas.uw.edu/courses/1116971/assignments/3857038)	due by 10:30am
	 Session 8: Painting and Blasting (https://canvas.uw.edu/courses/1116971/assignments/3857037)	due by 10:30am
	 Session 9: The Industrial Hygiene Preliminary Survey	due by 10:30am


Thu Oct 26, 2017	https://canvas.uw.edu/courses/1116971/assignments/3857039	
Tue Oct 31, 2017	 Session 10: Exposure Data Analysis https://canvas.uw.edu/courses/1116971/assignments/3857016	due by 10:30am
Thu Nov 2, 2017	 Session 11: Exposure Models and Banding https://canvas.uw.edu/courses/1116971/assignments/3857017	due by 11:59pm
Tue Nov 7, 2017	 Session 12, Biological Monitoring https://canvas.uw.edu/courses/1116971/assignments/3857018	due by 10:30am
Thu Nov 9, 2017	 Session 13: Lead Monitoring Readings https://canvas.uw.edu/courses/1116971/assignments/3857019	due by 10:30am
	 Session13: PBL #3, Exposure Assessment https://canvas.uw.edu/courses/1116971/assignments/3857020	due by 10:59pm
Tue Nov 14, 2017	 Session 14: Hierarchy of Controls https://canvas.uw.edu/courses/1116971/assignments/3857021	due by 10:30am
Thu Nov 16, 2017	 Session 15: PPE https://canvas.uw.edu/courses/1116971/assignments/3857022	due by 10:30am
Tue Nov 21, 2017	 Session 16: Work Organization and Management https://canvas.uw.edu/courses/1116971/assignments/3857023	due by 10:30am
Tue Nov 28, 2017	 Session 17 PBL #4: Controls Strategies https://canvas.uw.edu/courses/1116971/assignments/3857024	due by 10:30am
	 Session 17, PBL #4: Control Strategies https://canvas.uw.edu/courses/1116971/assignments/3857025	due by 10:30am
Thu Nov 30, 2017	 Session 18: Thermal Stress https://canvas.uw.edu/courses/1116971/assignments/3857026	due by 10:30am
Tue Dec 5, 2017	 Session 19: Ergonomics https://canvas.uw.edu/courses/1116971/assignments/3857029	due by 10:30am
Thu Dec 7, 2017	 Session 20: Noise https://canvas.uw.edu/courses/1116971/assignments/3857027	due by 10:30am
Tue Dec 12, 2017	 Final Exam https://canvas.uw.edu/courses/1116971/assignments/3857012	due by 10:59pm
	 Additional Resource 2 for Mini PBL #3 https://canvas.uw.edu/courses/1116971/assignments/3857004	


 [Additional Resource for Mini PBL #3](https://canvas.uw.edu/courses/1116971/assignments/3857005)
(<https://canvas.uw.edu/courses/1116971/assignments/3857005>)


 [Additional Resource for Mini PBL Activity #2 - MSDS for silica sand stone](https://canvas.uw.edu/courses/1116971/assignments/3857006)
(<https://canvas.uw.edu/courses/1116971/assignments/3857006>)

 [Additional Resource for Mini PBL Activity #2 - MSDS: Primer Moisture Cure Urethane](https://canvas.uw.edu/courses/1116971/assignments/3857007) (<https://canvas.uw.edu/courses/1116971/assignments/3857007>)

 [Additional Resource for Mini PBL Activity #2 - MSDS: Reducer No. 15](https://canvas.uw.edu/courses/1116971/assignments/3857008)
(<https://canvas.uw.edu/courses/1116971/assignments/3857008>)

 [Additional Resource for Mini PBL Activity #4 - Surface and Respirator Contamination Evaluation XYZ Inc.](https://canvas.uw.edu/courses/1116971/assignments/3857009)
(<https://canvas.uw.edu/courses/1116971/assignments/3857009>)

 [Additional Resources for Mini PBL #4 - Additional Information about Exposure Controls at XYZ Battery](https://canvas.uw.edu/courses/1116971/assignments/3857010)
(<https://canvas.uw.edu/courses/1116971/assignments/3857010>)

 [Additional Resources for Mini PBL Activity #2 - MSDS Pages \(will be made available upon request\)](https://canvas.uw.edu/courses/1116971/assignments/3857011)
(<https://canvas.uw.edu/courses/1116971/assignments/3857011>)

 [Long Assignment 1](https://canvas.uw.edu/courses/1116971/assignments/3857013)
(<https://canvas.uw.edu/courses/1116971/assignments/3857013>)

 [Long Assignment 2](https://canvas.uw.edu/courses/1116971/assignments/3857014)
(<https://canvas.uw.edu/courses/1116971/assignments/3857014>)

 [Participation](https://canvas.uw.edu/courses/1116971/assignments/3857015) (<https://canvas.uw.edu/courses/1116971/assignments/3857015>)

 [Short Assignment 1](https://canvas.uw.edu/courses/1116971/assignments/3857040)
(<https://canvas.uw.edu/courses/1116971/assignments/3857040>)

 [Short Assignment 2](https://canvas.uw.edu/courses/1116971/assignments/3857041)
(<https://canvas.uw.edu/courses/1116971/assignments/3857041>)

 [Videos for Session 8 In-Class Viewing \(will be auto-released at start of class\)](https://canvas.uw.edu/courses/1116971/assignments/3857042)
(<https://canvas.uw.edu/courses/1116971/assignments/3857042>)
