



**Mel and Enid Zuckerman College of Public Health  
University of Arizona**

**SYLLABUS  
Fundamentals of Industrial and Environmental Health CPH 484/584  
FALL 2009**

**Time:** Monday and Wednesday, 4:00-5:15

**Location:** Drachman Hall A-112

**Instructor:** Kelly Reynolds, PhD, [reynolds@email.arizona.edu](mailto:reynolds@email.arizona.edu)  
Paloma Beamer, PhD, [pbeamer@email.arizona.edu](mailto:pbeamer@email.arizona.edu)

**Office Hours:** Kelly Reynolds, Monday and Wednesdays, 2:45-3:45 pm  
Paloma Beamer, Monday and Wednesdays, 2:45-3:45 pm

**Course Description:** This course will introduce the principles of occupational and environmental health, with emphasis on industrial hygiene aspects of recognition, evaluation, and control of environmental and industrial health hazards. In addition, students will learn about emerging infectious disease agents, environmental transmission routes of disease and population impacts of disease.

**Course Prerequisites:** Undergraduates-advanced standing, Graduate Students-none

**Course Learning Objectives:** After completion of this course, students should be able to:

1. Recognize the major types of physical, chemical, and biological exposure agents capable of inducing disease in the public and in specific occupational populations.
2. Understand the basic strategies for evaluating or measuring airborne and waterborne exposure agents and relating these measurements to permissible exposure and other regulatory and recommended limits.
3. Describe general principles of safety, workplace safety interventions and environmental pollution mitigation.
4. Appreciate techniques for controlling exposures to toxic materials and pathogens.
5. Have a general understanding of how to apply industrial hygiene and environmental health principles to a workplace or environment.

**Course Website:** <http://d2l.arizona.edu>

**Course Notes:** Lecture notes will be provided on d2l. If they are not posted within 24 hours of the lecture meeting time, they will be distributed in class.

**Recommended Texts/Readings:** The textbook for the course is Fundamentals of Industrial Hygiene 5<sup>th</sup> Ed., published by the National Safety Council. It is available at the

medical school bookstore or on reserve in the library. Supplemental articles will be provided as well.

**Course Requirements:** Students will be required to complete 6 quizzes (lowest one dropped), 6 homework assignments, a project, a midterm exam, and a final exam. Undergraduate students will be expected to complete a memo and presentation as part of their projects. Graduate students will complete the above requirements and a panel review summary report.

**Grading/Student Evaluation:** The grading system for this course is based on the following items. Grading criteria for each metric given with assignments.

Homework:	6 at 25 pts each	(150)
Quizzes:	5 at 5 pts each**	(25)
Project:		(125)
Exams:	midterm =100 pts, final=100 pts	(200)
Point total =		500

\*\*Note: there will be 6 quizzes and the lowest score dropped.

Final grades will be based on the following relative point system:

- A = 90-100%
- B = 75-89%
- C = 65-74%
- E = < 65

**Class Attendance/Participation:** You are expected to attend class and participate by responding to rhetorical questions, submit the assignments on time, take exams on the specified dates. Pop-quizzes covering the reading will be administered, and no make-ups will be allowed. All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion. Absences pre-approved by the UA Dean of Students (or Dean's designee will be honored.)

**Communications:** You are responsible for reading emails sent to your UA account from your professor and the announcements that are placed on the course web site. Information about readings, news events, your grades, assignments and other course related topics will be communicated to you with these electronic methods. The official policy can be found at: <http://www.registrar.arizona.edu/emailpolicy.htm>. You should also check the d2l website frequently for updates and announcements. Consider setting your account in d2l to forward all messages to your UA email account. They are not automatically linked.

**Disability Accommodation:** If you anticipate issues related to the format or requirements of this course, please meet with me. I would like us to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Resources (621-3268; [drc.arizona.edu](http://drc.arizona.edu)) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations. The official policy can be found at: <http://catalog.arizona.edu/2008%2D09/policies/disability.htm>

**Academic Integrity:** All UA students are responsible for upholding the University of Arizona Code of Academic Integrity, available through the office of the Dean of Students

and online. The official policy found at: <http://dos.web.arizona.edu/uapolicies/cai1.html> and <http://dos.web.arizona.edu/uapolicies/scc5308abcd.html>.

**Classroom Behavior:** Students are expected to be familiar with the UA Policy on Disruptive Behavior in an Instructional Setting found at <http://web.arizona.edu/~policy/disruptive.pdf> and the Policy on Threatening Behavior by Students found at <http://web.arizona.edu/~policy/threatening.pdf>

**Grievance Policy:** Should a student feel he or she has been treated unfairly, there are a number of resources available. With few exceptions, students should first attempt to resolve difficulties informally by bringing those concerns directly to the person responsible for the action, or with the student's graduate advisor, Assistant Dean for Student and Alumni Affairs, department head, or the immediate supervisor of the person responsible for the action. If the problem cannot be resolved informally, the student may file a formal grievance using the [Graduate College Grievance Policy](http://grad.arizona.edu/catalog/policies/academic-policies/grievance-policy) found at <http://grad.arizona.edu/catalog/policies/academic-policies/grievance-policy>

**Grade Appeal Policy:** <http://catalog.arizona.edu/2008%2D09/policies/gradappeal.htm>

**Syllabus Changes:** Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate.

**Office Hours and Contact Policy:** If no one has arrived during the first half of office hours, the rest of the office hours are canceled. Instructors will check email at least once a day excluding weekends.

**Homework Guidelines:** For assignments to receive full credit they must be legible, and you must state all of your assumptions and show all work, including sample calculations for every type of calculation in a spreadsheet as necessary. If a problem specifies units, those specified units must be used, and if a problem asks for a table or graph, you must create the requested table or graph. You can discuss your results, problems, methods with each other, but each problem set write-up should be completed individually.

**Late Assignment and Make-up Policy:** All assignments must be submitted in hard copy format to be graded. Assignments should be submitted at the beginning of class on the due date. Any late assignments will be graded down 10% per day (including weekends) that it is late. An assignment is considered one day late if it is submitted after class on the due date. This applies to homework and the project. There will be no make-ups for class presentations, quizzes or exams.

**Telephone and Computer Use:** **You are not allowed to have your computer on during class.** Turn your cell phones to silent or vibrate in order to not disrupt the class and disturb your fellow students and professor.

**Plagiarism:** includes: copying and pasting information from a web site or another source, and then revising it so that it sounds like your original idea; doing an assignment with a friend and then handing in separate assignments that contain the same ideas, language, phrases, etc.; paraphrasing or quoting a passage without quotation marks or citations, so that it looks like your own; hiring another person to do your work for you, or purchasing a paper through any of the on- or off-line sources.

**Course Schedule:** Chapters under readings refer to the Fundamentals of Industrial Hygiene Book. Additional readings are on d2l.

Date	Topic	Instructor	Reading	Assignment Due
August 24	Introduction, Overview and History	Beamer/Reynolds		
August 26	Basic Science and Math Review	Beamer	Appendix C, D	
August 31	Exposure Routes and Uptake	Beamer	Ch. 2, 3	
September 2	Air: Overview and Particles	Beamer	Ch. 8	
September 7	Holiday ☺			
September 9	Air: Particles and Vapors	Beamer	Ch. 7	HW #1 Beamer
September 14	Air: Industrial Toxicology and Standards	Beamer	Ch. 6	
September 16	Air: Indoor Modeling	Beamer		
September 21	Air: Bioaerosols/ Project Expectations	Reynolds		
September 23	Soil Science	Reynolds		HW #2 Beamer
September 28	Water Quality	Reynolds		
September 30	Premise plumbing/ POU	Reynolds		
October 5	Biomarkers and PBPK Modeling	Beamer	Ch. 6	
October 7	Zoonotic infections	Reynolds		HW #3 Reynolds
October 12	Food safety/Outbreak Investigations	Reynolds		
October 14	<b>Midterm</b>	Beamer		
October 19	Physical Exposures: Noise and Vibration	Beamer	Ch. 4, 9	
October 21	Physical Exposures: Thermal Stress	Beamer	Ch. 12	
October 26	Physical Exposures: Ergonomics	Beamer	Ch. 13	HW #4 Reynolds
October 28	Physical Exposures: Radiation	Beamer	Ch. 10, 11	
October 31	HAZWOPER (Saturday)*	Christensen		
November 2	Environmental Toxicology	Reynolds		
November 4	Toxicant exposures in the home	Reynolds		
November 9	Nosocomial disease transmission and Emerging Infections	Reynolds		HW# 5 Beamer
November 11	Holiday ☺			

November 16	Class Presentations	Beamer/Reynolds		Project Memo
November 17	HAZWOPER (Saturday)*	Christensen		
November 18	Class Presentations	Beamer/Reynolds		
November 23	Principles of Risk Assessment	Reynolds		
November 25	Control of Industrial Hazards	Beamer	Ch. 18	
November 30	Control of Industrial Hazards	Beamer	Ch. 18	
December 2	Strategies of Pollution Prevention/Control/Mitigation	Reynolds		HW# 6 Reynolds
December 7	Global Perspectives	Reynolds		
December 9	Mirror Lab Tour			Project Report**
December 16	<b>Final Exam (5-7 pm)</b>			

**\*HAZWOPER Training:** Attendance at two eight hour Saturday supplementary sessions (8:00 am-5:00pm) on October 24 and October 31 will meet the regulatory requirement for HAZWOPER certification per 29CFR 1910.120. An exam will be given at the end of the final Saturday session which will cover all HAZWOPER-related course material covered in the class.

\*\* Graduate students only