

**COURSE SYLLABUS**

Course number: PubH 7200-114 #89141

Course title: Personal Protective Equipment and Respiratory Protection

Credits: 1

Course meeting times:	June 6-8, 1:00-5:00 June 10, 1:00-4:00
Instructor:	Peter Raynor Assistant Professor
Address:	Division of Environmental Health Sciences Mayo 1230 Minneapolis, MN 55455
Office phone:	(612) 625-7135
Home phone:	(952) 513-0729 (before 10:00pm)
Fax:	(612) 626-0650
Email:	praynor@umn.edu
Office hours:	by appointment

**I. Course Description**

Workers may need to wear personal protective equipment or respiratory protection to prevent unwanted exposures when engineering and administrative controls are not feasible. These potential exposures may occur during tasks performed every day or during responses to emergency situations. Students in this course will learn how to select and evaluate different kinds of personal protective equipment and respiratory protection. They will see and try on a variety of respirators and chemical protective clothing. They will learn how to develop legally-required personal protective equipment programs and respiratory protection programs.

**II. Learning Objectives**

After completion of this course, participants will be able to:

- (1) identify situations when the use of personal protective equipment is appropriate
- (2) select the personal protective equipment and/or respiratory protection needed to protect against an exposure
- (3) develop personal protective equipment programs
- (4) develop respiratory protection programs
- (5) discuss personal protective equipment and respiratory protection with a variety of constituencies

**III. Methods of Instruction and Work Expectations**

This course combines lectures with calculations, demonstrations, and hands-on activities. Students will be expected to spend about 3-6 hours reading materials, completing problem sets, and/or working on a group project before each class. Grades will also be assigned for class participation. The last class will include presentations on the group project.

A brief quiz, lasting approximately 5-10 minutes, will begin each class. The quizzes will cover key points from the assigned readings.

Three problem sets will be assigned during the course. These assignments will be due during the class following the one in which they are handed out. The goal of these assignments is to help students practice some of the computations associated with personal protective equipment and respiratory protection. These assignments will each be graded on a 20-point scale. Students may work together on problem sets. However, each student should submit her/his own assignment for grading.

Grades will be assigned for classroom participation. Students will be able to obtain full credit for classroom participation by asking questions, participating in discussions and hands-on activities, and submitting one-minute "essays" requested periodically by the instructor.

The group project will allow students to develop a written respiratory protection program and/or a PPE program for a fictitious business or agency. Groups will be assigned randomly by the instructor from the course roster. The written programs will be due during the final class and each group will make a 15 to 20 minute presentation of their program to the class.

For all work, partial credit will be awarded generously, so students should show all work. In addition, the neatness of the work is important because the instructor will be able to follow the students' reasoning more easily when trying to award partial credit.

#### IV. Additional Instruction

Nicole McCullough, Ph.D.; Senior Product Development Engineer, 3M Company; Adjunct Assistant Professor, Division of Environmental Health Sciences

Tara Oberg, M.S.; 3M Company

Andrew Phelan; Assistant Director, Hazardous Waste Officer, University of Minnesota Department of Environmental Health and Safety

#### V. Expectations

##### What the Instructor Expects from Students

- Students are expected to attend all classes and to arrive on time.
- Students should look at assigned readings prior to class and bring the readings to class.
- Students should bring a calculator to all classes.
- Students are expected to answer questions posed by the instructors and participate in classroom discussions.
- Students are responsible for asking questions and/or letting instructors know when they do not understand lectures or course materials.
- Although students may work together on problem sets, each student should turn in a separate paper.
- Students must work independently on the quizzes given in class.
- Students are expected to work cooperatively on their group projects and to share the workload evenly.
- Students are encouraged to provide constructive feedback to the instructors when they are dissatisfied with the course content or teaching methods.

### What Students Should Expect from the Instructor

- The instructor will be enthusiastic about the class and the subject matter.
- The instructor will begin and conclude classes on time.
- The instructor will state objectives for each class session.
- The instructor will provide for at least two breaks during each class.
- Respecting the students' styles of learning, the instructor will use a variety of instructional methods.
- The instructor will answer all questions posed during class by students. Whenever possible, questions will be answered immediately. As an alternative, the instructor may indicate that the question will be addressed later in the class or that he will answer the question at the beginning of the next lecture if he does not know the answer.
- The instructor will ensure that all discussions in class are conducted in a professional and collegial manner.
- The instructor will create assignments with clear expectations.
- The instructor will grade assignments objectively on criteria shared with the students in advance.
- The instructor will provide feedback on assignments that identifies both strengths and weaknesses in student work with constructive suggestions for improvement.
- The instructor will make himself available outside of class to discuss any aspect of the course with students.

### Additional Information

Every class is influenced by the fact that participants bring diverse values, experiences, and abilities into the classroom. All participants will be expected to listen to those with differing views, disagreeing with the views while remaining respectful of the individuals who hold them. Students should feel free to question the instructors and each other collegially at any time.

## VI. Grading

The breakdown of grading for the course is:

Quizzes on readings	20 %
Classroom participation	20 %
Problem sets	30 %
Group project	30 %

### 1. Grading Criteria: This course is offered A/F or S/N

- A/F letter grade will be determined by total effort as follows:

A = 93-100%	(4.0) Represents achievement that is outstanding relative to the level necessary to meet course requirements.
A- = 90-93%	
B+ = 87-90%	
B = 83-87%	(3.0) Represents achievement that is significantly above the level necessary to meet course requirements.
B- = 80-83%	
C+ = 77-80%	
C = 73-77%	(2.0) Represents achievement that meets the minimum course requirements.
C- = 70-73%	
D+ = 67-70%	

D = 60-67%	(1.0) Achievement below minimum course expectations but sufficient to be awarded credit.
D- =	
F = below 60%	Represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I.

- S/N option must complete all assignments to a C- level (70%):

S	Achievement that is satisfactory will be expected to complete all assignments and receive a minimum of 70% to receive a passing score (achievement required for an S is at the discretion of the instructor but may be no lower than a 70%).
F	Represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I.

2. **Grading Option** - Students may change grading options during the initial registration period or during the first two days of the term. **The grading option may not be changed after the second day of class.**
3. **Course Incomplete** - An incomplete grade is permitted only in cases of extraordinary circumstances and following consultation with the instructor. In such cases and "I" grade will require a specific written agreement between the instructor and the student specifying the time and manner in which the student will complete the course requirements. Extension for completion of the work will not exceed one year.
4. **Scholastic Dishonesty** - This course follows the University of Minnesota Board of Regents' policy on student conduct and scholastic dishonesty which can be found at: <http://www1.umn.edu/regents/policies/academic/StudentConductCode.pdf>

A grade of "F" or "N" for the entire course will be assigned for scholastic dishonesty as defined in the policy and will be reported to the Office of Student Judicial Affairs  
<http://www.sja.umn.edu/>

Plagiarism is an important element of this policy. It is defined as the presentation of another's writing or ideas as your own. Serious, intentional plagiarism will result in an "F" or "N" grade for this course. For more information on this policy and for a helpful discussion of preventing plagiarism, please consult University policies and procedures regarding academic integrity:  
<http://cisw.cla.umn.edu/plagiarism/uofmpolicies.html>

Students are urged to be careful that they properly attribute and cite others' work in their own writing. For guidelines for correctly citing sources, go to <http://tutorial.lib.umn.edu/>. In addition, original work is expected in this course. It is unacceptable to hand in assignments for this course for which you received credit in another course unless by prior agreement with the instructor. Building on a dissertation or final project is acceptable.

If you have any questions, consult the instructor.

## VII. Course Withdrawal

School of Public Health Students may withdraw from a course **through the second day** of the course without permission. No "W" will appear on the transcript. After the second day, students are required to do the following:

- The student must contact and notify their advisor and course instructor informing them of the decision to withdraw from the course.
- The student must send an email to the SPH Student Services Center (SSC). The email must provide the student name, ID#, course number, section number, semester, and year with instructions to withdraw the student from the course, and acknowledgement that the instructor and advisor have been contacted.
- The advisor and instructor must email the SSC acknowledging the student is canceling the course. All parties must be notified of the student's intent.
- The SSC will complete the process by withdrawing the student from the course after receiving all emails (student, advisor and instructor). A "W" will be placed and remain on the student transcript for the course.
- After discussion with their advisor and notification to the instructor, students may withdraw until the end of the second day of class. There is no appeal process.

## VIII. Disabilities

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the instructor and Disability Services at the beginning of the term. All discussions remain confidential. For further information contact the University of Minnesota Disability Services website at <http://ds.umn.edu/> or call 612-626-1333 (V/TTY).

## IX. Course Text and Readings

Readings include the following published articles available from the listed websites. Students should go to the websites via the link provided to download the materials required for this course.

Standards - 29 CFR Part 1910, Subpart I, Sections 132-138 (Personal Protective Equipment), <http://www.osha.gov/SLTC/personalprotectiveequipment/standards.html>  
(This should be read before the start of the first class period. See course outline.)

National Institute of Justice (2002): *Guide for the Selection of Personal Protective Equipment for Emergency First Responders, Volume I*, U.S. Department of Justice, Office of Justice Programs, NIJ Guide 102-00, <http://www.ncjrs.org/pdffiles1/nij/191518.pdf>

OSHA (2003): *Personal Protective Equipment*, U.S. Department of Labor, Occupational Safety and Health Administration, Pub. No. OSHA 3151-12R, 46 pp., <http://www.osha.gov/Publications/osha3151.pdf>

OSHA (1998): *Small Entity Compliance Guide for the Revised Respiratory Protection Standard*, U.S. Department of Labor, Occupational Safety and Health Administration, <http://www.osha.gov/Publications/secgrev-current.pdf>

## X. Course Outline/Weekly Schedule

- 6/6/05 Day 1 **Course Introduction**  
Course syllabus and schedule; occupational exposure limits; hierarchy of control
- Personal Protective Equipment Introduction**  
Acceptable uses for PPE, including respiratory protection; types of PPE; regulations governing use of PPE and respiratory protection
- Constructing a Program**  
Elements of respiratory protection programs; elements of PPE programs; Resources for developing your own programs
- Assignment of Group Projects**
- Required Reading:  
●●● Review, but do not necessarily read word for word ●●●  
Standards - 29 CFR Part 1910, Subpart I, Sections 132-138 (Personal Protective Equipment),  
<http://www.osha.gov/SLTC/personalprotectiveequipment/standards.html>
- 6/7/05 Day 2 **Guest Instructor: *Nicole McCullough, 3M Company***
- Respiratory Protection**  
Selection of respiratory protection; demonstrations and hands-on activities with respiratory protection; certification of respiratory protection; respirator fit testing; respiratory protection against chemical, biological, and radiation/nuclear agents
- Group Projects**  
Time to work and ask questions regarding group projects
- Required Reading:  
●●● Introduction & Sections (a)-(f) ●●●  
OSHA (1998): *Small Entity Compliance Guide for the Revised Respiratory Protection Standard*, U.S. Department of Labor, Occupational Safety and Health Administration,  
<http://www.osha.gov/Publications/secgrev-current.pdf>
- PROBLEM SET #1 DUE**
- 6/8/05 Day 3 **Guest Instructor: *Tara Oberg, 3M Company***
- Respiratory Protection**  
Use of surgical masks for respiratory protection
- Guest Instructor: *Andrew Phelan, University of Minnesota***
- Chemical Protective Clothing**  
Selection of chemical protective clothing; demonstrations and hands-on activities with chemical protective clothing; special considerations for emergency response
- Group Projects**  
Time to work and ask questions regarding group projects

Required Reading:

••• pp. 1-38 •••

National Institute of Justice (2002): *Guide for the Selection of Personal Protective Equipment for Emergency First Responders, Volume I*, U.S. Department of Justice, Office of Justice Programs, NIJ Guide 102-00,  
<http://www.ncjrs.org/pdffiles1/nij/191518.pdf>

**PROBLEM SET #2 DUE**

6/10/05 Day 4

**Other Personal Protective Equipment**

Head protection; eye protection; foot protection; hand protection

**Group Project Presentations**

Required Reading:

OSHA (2003): *Personal Protective Equipment*, U.S. Department of Labor, Occupational Safety and Health Administration, Pub. No. OSHA 3151-12R, 46 pp.,  
<http://www.osha.gov/Publications/osha3151.pdf>

**PROBLEM SET #3 DUE**

**XI. Class Project**

Students will work in groups to develop written personal protective equipment and respiratory protection programs for a workplace. The plans will be presented in the final class orally and the written plans will be handed in for grading.