

Fall Semester 2005 PubH 6170UNIVERSITY
OF MINNESOTA**School of
Public Health****Introduction to Occupational Health &
Safety
Course Syllabus**

Credits:	3
Meeting Time:	Tuesdays, 12:20-3:20
Meeting Place:	Mayo 125
Instructor:	Nancy Nachreiner, PhD MPH RN COHN-S
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Office Hours:	Call/email to arrange

I. Course Description

This course is an introduction to major concepts and issues in occupational health and safety. Students identify a conceptual framework for working with populations of workers as an industrial hygienist, safety professional, occupational physician, or occupational health nurse. The application of public health principles and decision-making processes will be discussed in relation to the prevention of injury and disease, health promotion and protection of worker populations from environmental hazards. This course relies on the synthesis of knowledge in the behavioral sciences, industrial hygiene, injury epidemiology, safety, nursing theory, toxicology and epidemiology while applying these within a program development and management framework. Students will participate in at least one observational visit to a work place.

II. Course Prerequisites

Environmental health major or instructor permission is required.

III. Learning Objectives

At the completion of the course, the student will:

1. Recognize the interrelatedness of public health, management, employees, and the government to the goals of occupational health and safety.
2. Demonstrate a base of knowledge in the recognition and assessment of health

and safety hazards in the workplace.

3. Identify a conceptual framework for the practice of occupational health and safety.
4. Relate health promotion/prevention/protection concepts to the occupational health and safety program.
5. Discuss the roles and functions of the occupational health and safety professional in the application of the conceptual framework.
6. Apply theories and concepts of occupational health and safety to the development and management of programs.
7. Identify education, engineering, and enforcement controls for the prevention of occupational health and safety problems.
8. Demonstrate ability to access occupational health and safety information resources, hard copy and on-line.

IV. Methods of Instruction and Work Expectations

This course combines lectures with case examples, discussion, and demonstrations. Students will be expected to contribute, ask questions and seek more information when the activities are not clear. It is expected that the academic work required of graduate and professional students will equal four hours per credit per week. All students must prepare and participate in the following exercises before a passing grade is given:

- Participation in field trips (Honeywell and Regions Hospital) (10 points per trip)
- Midterm exam (50 points)

- Web fact sheet (25 points)
 - Team presentation of a critique of TLV documentation (50 points)
 - Average score from team members for TLV project (10 points)

- Final comprehensive written exam (75 points)

- Class participation (10 points)

Attendance – Please be on time for class as a courtesy to our speakers and your fellow students. We will be covering a broad range of topics in this course, and it is important that you attend every class. Please be respectful, and contact me at least 24 hours prior to class if you know you will be absent. More than two *unexcused* absences will result in loss of 5 points from your final grade. *Being late to class* (arriving more than 10 minutes

late) more than once may result in the *loss of 2 points from your final grade, for each occurrence.*

V. Evaluation and Grading

Grading Criteria – A/F or S/N

Letter grades will be determined by total effort as follows:

Grade	Percent	Description
A	95 –100	(4.0) Represents achievement that is outstanding relative to the level necessary to meet course requirements.
A-	90-94	
B+	87-89	
B	83-86	(3.0) Represents achievement that is significantly above the level necessary to meet course requirements
B-	80-82	
C+	77-79	
C	73-76	(2.0) Represents achievement that meets the minimum course requirements
C-	70-72	
	<70	No pass below 70 points

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 (or N) -- 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.

Assignment Deadlines - Assignments are due at the beginning of class on the due date indicated in the syllabus. For each day that an assignment is late, 2

points will be deducted from your final grade.

General instructions – Assignments should be typed and free from spelling errors.

Field Trip Requirements

It is extremely important that you dress appropriately when visiting an industrial location, particularly in the context of health and safety. An additional requirement of this course, therefore, is that you are properly attired during a field trip. This means that you should wear pants (no skirts or dresses) and sturdy, closed-toed shoes. Do not wear dangling clothing or jewelry (no scarves, ties, necklaces, dangling earrings, bracelets, etc.). Keep in mind that many industrial processes are very dirty. Do not wear anything you care about, because it may be ruined.

If you are not properly attired at the start of the field trip, you will not be able to participate in any of the activities in the plant. There can be no exceptions. If you are unable to participate in a field trip due to improper attire, you will lose points from your course grade.

Although personal protective equipment will be provided, if needed, on the field trip, if you have your own protective equipment, such as safety glasses or hearing protection, you may wish to bring these along as well. Visitor safety glasses are often not the right size and may be difficult to see through.

You may also wish to bring along a pad of paper, something with which to write, and some locations may require photo identification (e.g. driver's license). Please do not bring valuables, such as large purses, on field trips. Either leave them at home, or lock them in your vehicle. Large backpacks or purses can get in the way when you are touring and recording your observations, and some facilities will not have locked areas to leave these items during tours.

Please note the following:

§ If applicable, students may change grading options during the initial registration period or during the first two weeks of the term. **The grading option may not be changed after the second week of the term. In general, all EnHS students should take this class A/F (not S/N).**

§ An incomplete grade is permitted only in cases of exceptional circumstances and following consultation with the instructor. In such cases an "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.

VI. Scholastic Dishonesty and Plagiarism

Students are responsible for knowing the University of Minnesota, Board of Regents' policy on student conduct and scholastic dishonesty: <http://www.umn.edu/regents/policies/academic/StudentConduct.html>.

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

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 a grade of "F" or "N" for the entire 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/> and click on "Citing Sources".

In addition, original work is expected in this course. It is unacceptable to hand in assignments for this course for which you receive credit in another course unless by prior agreement with the instructor. Building on a line of work begun in another course or leading to a thesis, 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 week** of the semester without permission. No "W" will appear on the transcript. **After the second week**, 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 e-mail to franc004@umn.edu in 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 up until the eighth week of the semester. There is no appeal process.

VIII. Course Text and Readings

Required text:

Course packet (available in the bookstore)

Recommended texts: (Consult with instructor before purchase.)

The Occupational Environment - Its Evaluation and Control. S.R. DiNardi, Editor. AIHA, Fairfax Virginia, 2003. ISBN 1-931504-43-1.

McCunney, R.J. A Practical Approach to Occupational and Environmental Medicine (Third Edition). Lippincott, Williams, and Wilkins, Philadelphia, 2003. ISBN 0-7817-3674-9.

Rogers, Bonnie. Occupational and Environmental Health Nursing: Concepts and Practice (Second Edition). W.B. Saunders Company, Philadelphia, 2003. ISBN 0-7216-8511-0.

Accident Prevention Manual: Administration and Programs. 12th Edition. P. Hagan, Editor. National Safety Council, 2001. ISBN 0-87912-212-9.

These books are available in the Biomedical Library, Diehl Hall, and are available for purchase through the University of Minnesota bookstore. If you plan to use the books in the library, please note: the books are not on "reserve" as is frequently the case for course texts. We have requested that these books be made part of the "core collection" of books that are permanently available to students year round. To view these texts, go to the main desk on the second floor of the library, and ask for the book by the author's name. The books will not be listed by the course number, only by the author's name.

IX. Course Outline/Weekly Schedule

Week	Topic	Readings
Week 1 9/6/05 Nancy Nachreiner	<u>Course overview and objectives, history</u> <ul style="list-style-type: none"> • History of occupational health and safety • “A Dangerous Business” video (Frontline, 2003) • Framework for occupational health and safety, professional specialties, associations, licensure, certification • Lois Fingerhut (NORA) lecture 	Handouts
Week 2 9/13/05	View Special Populations modules (No formal class): <u>WebCT modules:</u> Available at: Vista.umn.edu, log on with your x500 university ID <ul style="list-style-type: none"> • The labor perspective: Professor Peter Rachleff, Macalester College • Women in the Trades <u>2005 NORA seminars:</u> http://www.sph.umn.edu/publichealthplanet/events/NORA.html : <ul style="list-style-type: none"> • The impact of work on older adults (David Wegman) • Reaching the hard-to-reach: Outreach to vulnerable workers (Rosemary Sokas) 	<ul style="list-style-type: none"> • Frumkin, H., Pransky, G. Special Populations in Occupational Health. (1999). Occupational Medicine: State of the Art Reviews, 14 (3), 479-484. • Ashford, N.A. (1999). The Economic and Social Context of Special Populations. Occupational Medicine: State of the Art Reviews, 14 (3), 485-493. • Frumkin, H., Walker, E.D., and Friedman-Jimenez, G. (1999). Minority Workers and Communities. Occupational Medicine: State of

		the Art Reviews, 14 (3), 495-517.
Week 3 9/20/05 Pat McGovern (12:30-2:00) Nancy Nachreiner (2:00-3:20)	<ul style="list-style-type: none"> • Financial aspects of occupational health • Health promotion <ul style="list-style-type: none"> • Nico Pronk (NORA) lecture (www.oconnect.com/NORA/) • Education/training programs (legal requirements, adult learning) 	<ul style="list-style-type: none"> • DiNardi: Chapter 30 Worker Education and Training • http://www.cba.uri.edu/Scholl/Notes/Change_TTM.htm

Week 4 9/27/05 Lisa Brosseau (12:30-1:30) Bill Lohman (1:30-3:20)	<u>Legal aspects of occupational health and safety</u> <ul style="list-style-type: none"> • Occupational exposure limits (PELs, TLV documentation) • Workers' Compensation, ADA, FMLA 	<ul style="list-style-type: none"> • DiNardi: Chapter 3 Occupational Exposure Limits, Chapter 6 Comprehensive Exposure Assessment • Kennedy GL JR. Setting a threshold limit value (TLV): The process. Chemical Health & Safety, July/August 2001, pp 13-15. • Weisburger EK, History and background of the Threshold Limit Value Committee of the American Conference of Governmental Industrial Hygienists. Chemical Health & Safety, July/August 2001, pp 10-12. • Report of the
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		National Commission on State Workmen's Compensation Laws (focus on Introduction, Summary, Chapters 1 and 2)
Week 5 10/4/05 Beth Baker	<u>Recognition/Assessment</u> <ul style="list-style-type: none"> • Health Assessments • Health Surveillance • Employee Selection Tour of Regions Occupational Health Clinic (tour begins at 12:45, ends at 2:45)	<ul style="list-style-type: none"> • Rogers, Chapter 10 • DeKort, W., Van Dijk, F. 1997. Preventive effectiveness of pre-employment medical assessments. Occupational and Environmental Medicine, 54 (1), 1-6.
Week 6 10/11/05 Phil Jacobs (12:30-2:00) Nancy Nachreiner (2:00-3:20)	<ul style="list-style-type: none"> • Ergonomics • Discuss special populations modules <u>Recognition/Assessment</u> <ul style="list-style-type: none"> • Psycho-social hazards (stress, violence) • NIOSH DVD: Violence on the Job (2004) 	<ul style="list-style-type: none"> • Readings distributed prior to lecture
Week 7 10/18/05	Midterm	

Week 8 10/25/05	TLV group work time (No formal class)	
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<p>Week 9 11/1/05 John Mulhausen</p>	<p><u>Recognition/Assessment</u></p> <ul style="list-style-type: none"> • Physical/Energy Hazards (mechanical, noise, radiation, temperature, light, structures, electrical, fire, explosion, confined space) 	<p>DiNardi:</p> <ul style="list-style-type: none"> • Chapter 43 Confined Spaces • Chapter 21 Noise, Vibration and Ultrasound • Chapter 22 Nonionizing Radiation • Chapter 23 Ionizing Radiation • Chapter 24 Hot and Cold Environments • Chapter 27 Biomechanics • Chapter 28 Ergonomics • Chapter 6 Comprehensive Exposure Assessment • Chapter 7 Principles of Evaluating Worker Exposure
<p>Week 10 11/8/05 John Mulhausen</p>	<p><u>Recognition/Assessment</u></p> <ul style="list-style-type: none"> • Chemical Hazards (vapors, mists, solids, fumes, aerosols) • Biological Hazards (fungi, molds, virus, bacteria, animals) 	<p>DiNardi:</p> <ul style="list-style-type: none"> • Chapter 19 Biohazards in the Work Environment • Chapter 2 Environmental and Occupational Toxicology • Chapter 17 Approaches for Occupational Exposure Assessment and Management • Chapter 18 Development of Occupational Skin Disease

Week 11 11/15/05 Pete Raynor	<u>Hierarchy of Controls</u> <ul style="list-style-type: none"> • Engineering controls • Administrative controls • Personal protective equipment 	DiNardi: <ul style="list-style-type: none"> • Chapter 32 General methods for the control of airborne hazards; • Chapter 35 Personal protective clothing; • Chapter 36 Respiratory protection
Week 12 11/22/05 Gary Olmstead	<u>Program Management</u> Rationale, Vision, Mission, Values, Goals, Performance Metrics, Organizational Structure, Staffing, Budgets, Policies, Safety Procedures, Industrial Hygiene, Occupational Health, Emergency Procedures, Training, Communication, Audits, Insurance, Benchmarking, Leadership	DiNardi: <ul style="list-style-type: none"> • Chapter 37 Program Management • Chapter 39 Risk Communication
Week 13 11/29/05	Honeywell Tour (begins at 12:45, ends no later than 3:00)	
Week 14 12/6/05 John Shutske (12:30-2:00) Student Presentations (2:00-3:30)	<ul style="list-style-type: none"> • TLV Critiques • Agricultural Health and Safety and Safety Engineering Basics 	<ul style="list-style-type: none"> • http://www.worh.org/new_orh_docs/resrc_farmershealth.asp#curricindex ---- See PDF article by Purschwitz; • Review website: http://safety.coafes.umn.edu/; • http://safety.coafes.umn.edu/haddon.htm

Week 15 12/13/05 Deb Boyle (12:30-2:00) Nancy Nachreiner (2:00-3:20)	<ul style="list-style-type: none"> • Emerging Occupational Health threats (Biowatch) • Issues and Trends • Review for final • Course evaluation 	<ul style="list-style-type: none"> • These readings will be assigned prior to class.
Final Exam 1:30-3:30 Wednesday December 21, 2005		

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have a documented disability (e.g., physical, learning, psychiatric, vision, hearing, or systemic) that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities are encouraged to contact Disability Services to have a confidential discussion of their individual needs for accommodations. Disability Services is located in Suite 180 McNamara Alumni Center, 200 Oak Street. Staff can be reached by calling 612/626-1333 (voice or TTY).

version 01/2005

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Web Search Fact Sheet (25 points)

For this assignment, you should select a contemporary **occupational health and safety topic**. For example, you might be interested in what can be done about work-related violence, or whether back belts are recommended for lifting heavy objects. With this topic in mind, conduct a web search for information on this topic.

Prepare a fact sheet (one page minimum, two page maximum) using the information you found on the web relevant to your topic. A Question/Answer format works well for this kind of document. This fact sheet should be something you would be willing to **share**

with both management and workers when they ask you a question about this topic. Keep in mind that they will not understand complicated scientific terms; therefore, **avoid technical jargon**. Be sure to provide appropriate references to the materials you use to develop this fact sheet. You are not limited to using just materials gleaned from your web search; however, it should be clear in your fact sheet that you have utilized information gained from a web search. The purpose of this assignment is to make you familiar with utilizing the wealth of information available on the web.

For examples of fact sheets, please refer to the following websites:

http://www.osha.gov/OshDoc/data_BloodborneFacts/bbfact03.pdf

http://www.osha.gov/OshDoc/data_General_Facts/factsheet-workplace-violence.pdf

Evaluation

This assignment is worth 25 points:

Grading Criteria	Points
Written to appropriate audience (suitable for employees and management)	5
Topic relevant to occupational health and safety	5
Overall quality	5
Error free spelling, proper grammar and punctuation	3
Visually interesting: used graphics and/or modified text	3
Avoids technical terminology/jargon	2
Minimum of three websites listed as references	1
Appropriate length of document (1 page minimum, 2 page maximum)	1

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Threshold Limit Values Assignment (50 points)

For this assignment, you will be assigned a threshold limit value (TLV) to critique within a 30 minute presentation. You will be assigned to a group for this critique. No paper will be due for this assignment, your grade is strictly based on your group presentation. Copies of your slides should be given to the faculty graders and your fellow students at the time of your presentation. TLVs are published in, "Documentation of the Threshold Limit Values and Biological Exposure Indices;" Cincinnati, Ohio; American Conference of Governmental and Industrial Hygienists, and can be accessed at the Biomedical Library, University of Minnesota. In addition to reviewing the TLV documentation from this publication, you will need to conduct a literature search to determine what research has been conducted since the TLV was published. Consider the assessment criteria listed below (and any other questions which occur to you) as you prepare your critique. Your grade will be based on the quality of your response to these requirements.

1. Describe the background and magnitude of the problem. (15 points)

- a. What is the current TLV?
- b. Are there any notations?
- c. What is this chemical/product used for?
- d. What types of workers may be exposed?
- e. How many people may be exposed (magnitude of the problem)?
- f. What are the primary health effects?
 - i. On which effects are the TLV based (dermal, respiratory, cancer, etc.)?
 - ii. Are there other serious side effects of exposure?

2. Provide a brief summary/history of the TLV. (15 points)

- a. When were studies supporting this TLV conducted?
- b. What types of data were used (animal, human, etc.)?

i. Describe the studies (do not state, “animal data were used.” Describe the studies).

c. Do studies conflict, or do all support the same levels?

d. What changes have been made in the TLV (did it increase, then decrease, then increase, (etc.), and if so, WHY did it change?

e. What studies have been published since the current TLV was established?

3. Present your agreement with the current TLV. (15 points)

a. Do you agree with the current levels? (You must choose a position; do not simply state that more research is necessary.)

b. Why do you agree (or disagree) with the levels?

c. What TLV would you recommend (be specific)?

d. What are the implications if you 1) recommend a change to the current levels, or 2) if you propose they stay at the current level?

In addition, another 5 points are based on: 1) overall quality; 2) organization; 3) interesting use of graphics; and 4) sound structure (no spelling errors, included at least 5 APA style references).

Individual Contribution to the Team Effort

How well did your team member work at assigned tasks?

1	3	5	7	10
Made no effort	Made a little effort	Spurts of effective work	Above average in contribution	Worked well, achieved definite contributions

Fill in the name of each of your team members below, and write the score you would give them (0-10) for their contribution to the group presentation. You may want to consider the following questions:

Did the group member complete tasks on time?

Did the group member provide constructive input, when necessary?

Did the group member communicate regularly and promptly with other group members?

Did the group member attend group meetings?

Each team member is to complete the form for his/her team members. An average score will be computed.

Your name: _____

Name of each team member Score for each team member (10 point maximum)

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