

School of Public Health

Syllabus and Course Information



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

PubH 6170

Introduction to Occupational Health and Safety

Fall 2017 (Version 9/1/17)

Credits: 3
Meeting Days: Wednesdays
Meeting Time: 2:30 – 5:30
Meeting Place: Mayo D 325
Instructor: Pat McGovern, PhD, MPH, BSN, Professor
Office Address: Arranged by Appointment; Mayo 1112
Office Phone: 612-625-7429 (Instructor's Office)
E-mail: pmcg@umn.edu
Office Hours: E-mail to arrange

I. Course Description

This course is an introduction to major concepts and issues in occupational health and safety (OHS) designed for students from OHS-related disciplines. Students will develop a conceptual framework for working with populations of workers and apply public health principles to facilitate knowledge of occupational exposures, health outcomes and risk management approaches. Work-related hazards will be described in terms of recognition and control. This course relies on a synthesis of knowledge in the behavioral sciences, industrial hygiene, injury prevention and safety, nursing theory, toxicology and epidemiology and will apply this content to a program development and management framework. Students will participate in an observational visit to a local manufacturing plant.

II. Course Prerequisites

Environmental health major or instructor permission is required.

III. Course Goals and 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.

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 assignments listed before a passing grade is given. Each assignment is associated with its percent of the course grade.

- Midterm exam 20%
- Fact sheet (*description on page 11*) 10%
- Team presentation of a critique of TLV documentation (*description on pages 12 -13 of syllabus*) 40%
- Final exam 20%
- Class attendance and participation (*described below*) 10%

Attendance and Participation– 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 by email at least 24 hours prior to class if you know you will be absent.

Your class participation points will be based on your submitting a discussion question or test question and your answer based on that particular session's presentation or the required readings associated with that class. Ten sessions are identified in the schedule. Indicate whether the question was based on the content in the presentation or the readings. If based on readings, indicate the source (cite the specific web link and date accessed; or if a printed reference, cite the author(s), book or journal name, date, and page). Some of your questions may be incorporated into the midterm or final, so focus on what you feel are some of the most important parts of the lectures or readings. The goal is to leave the class being aware of the scope of the field, the nature and significance of the hazards, the associated health and safety problems, and the role of occupational health professionals to promote employees' health and safety and prevent and manage their illnesses and injuries.

The course web page contains documents (e.g., course syllabus) and a discussion forum. The web link can be found at "MyU" in association with the class number, PubH 6170.

V. Course Text and Readings

Instead of a course text there are a variety of readings from texts written for multidisciplinary professionals and journals. The primary texts are noted below with an asterisk and they are available online or in hard copy and available through the biomedical library, Diehl Hall as “reserve” readings. The texts also are available for purchase through Amazon or professional associations.

To access texts available in digital form use the following link: <https://reserves.lib.umn.edu/>

You must log in with your U of M internet ID and password to view the page (this is the same information you would enter to log in to your U of M email). If you have any problems accessing the page or logging in, please contact biomrsv@umn.edu

The readings should be read before each class.

*Levy, B. S., Wegman, D. H., Baron, S. H. and Sokas, R. K., Editors. *Occupational and Environmental Health: Recognizing and Preventing Disease and Injury* (Sixth Edition). New York, NY: Oxford University Press, 2011. Oxford University Press, New York, 2014. ISBN 978-0-19-539788-8.

This text is available for “single user” online access or the ability to download chapters at: <http://ebookcentral.proquest.com/lib/umn/detail.action?docID=631628> and there is a hard copy available at the TC Bio-Medical Library Course Reserve (2nd Floor Circulation Desk) (WA440 L101 2011),

*Anna, D.H., Editor. *The Occupational Environment - Its Evaluation, Control, and Management*. AIHA, Fairfax, Virginia, 2011. ISBN 978-1-935082-15-6. There is “multiple user” online access to the text in addition to a hard copy available at the TC Bio-Medical Library Course Reserve.

LaDou, J. and Harrison, R., Editors. *Current Diagnosis & Treatment: Occupational and Environmental Medicine* (5th Edition). McGraw-Hill Education, New York, 2014. ISBN 978-1-25-925145-0. There is “multiple user” online access to the text.

P.V. Moore, R. L. Moore, Editors. *AAOHN Core Curriculum* (4th Edition) Editors: AAOHN Academy. Pensacola, 2014. ISBN 978-0-9848861-2-8. This text is only available in hard copy at the TC Bio-Medical Library Course Reserves.

Hagan, P.E., Montgomery, J.F., and O’Reilly, J.T., Editors. *Accident Prevention Manual for Business and Industry: Administration and Programs* (13th Edition). National Safety Council, 2009. ISBN 978-0-87912-280-5. WA 485 H1 2009. This text is only available in hard copy at the TC Bio-Medical Library Course Reserves.

VI. Course Outline/Weekly Schedule

Week	Topic	Readings/Assignments
Week 1 9/6/17 Pat McGovern, PhD, MPH, Course Instructor	Course overview, overview of OHS and the workforce, future of work, interdisciplinary roles and frameworks for practice	Required readings: Levy BS, et al. (2011) <i>Occupational and environmental health: Twenty-first century challenges and opportunities</i> (Chapter 1), <i>Recognizing and preventing occupational and environmental disease and injury</i> (Chapter 2) and <i>Occupational and</i>

		<p><i>environmental surveillance</i> (Chapter 3), pp. 3-22; 23-54; 55-68.</p> <p>Review this website: https://www.cdc.gov/niosh/index.htm</p> <p>Submit test question #1 at end of class</p>
<p>Week 2 9/13/17 Zeke McKinney, MD, MPH</p>	<p>History of Occupational Health, Field of Occupational and Environmental Medicine</p>	<p>Required reading: Levy BS, et al. (2011) <i>Clinical occupational and environmental practice</i>. (Chapter 28, pp.606-620).</p> <p>Review this website: http://OSHA.gov</p> <p>Review this handout: "OSHA at-a-glance" https://ay16.moodle.umn.edu/pluginfile.php/6735/10/mod_label/intro/OSHA-at-a-Glance.pdf</p> <p>*Submit test question #2 at end of class</p>
<p>Week 3 9/20/17 Beth Baker, MD, MPH Gail Prevatiner, RN Course Instructor</p>	<p>1) Workers' Compensation 2) Understanding the Opioid Epidemic</p>	<p>Required reading: Levy B.S., et al. (2011) <i>Legal remedies</i>. (Chapter 31, pp. 664-696).</p> <p>Review these websites: http://www.dli.mn.gov/WorkComp.asp https://blogs.cdc.gov/niosh-science-blog/2014/05/14/opioid-abuse/ https://www.cdc.gov/niosh/topics/prescription/default.html</p> <p>*Submit test question #3 at end of class</p>
<p>Week 4 9/27/17 Tammy Schult, PhD, MPH Course Instructor</p>	<p>1) Total Worker Health 2) Occupational Psychology *Fact Sheet due at beginning of class</p>	<p>Required Readings</p> <p>Schill A (2017) Advancing Well-Being Through Total Worker Health®. <i>Workplace Health & Safety</i>. 65(4):158–163, APR 2017</p> <p>Anger WK, Elliot DL, Bodner T et al. (2015) <i>Journal of Occupational Health Psychology</i>. 20(2):226-247.</p> <p>Review this website: https://www.cdc.gov/niosh/twh/publications.html</p> <p>*Submit test question #4 at end of class</p>

<p>Week 5 10/4/17 Susan Arnold, PhD, CIH</p>	<p>Occupational Exposure Limits</p>	<p>Required readings: Anna, D.H., (2011). <i>Occupational exposure limits</i>. (Chapter 4, pp. 56-81).</p> <p>Kennedy GL JR. Setting a threshold limit value (TLV): The process. <i>Chemical Health & Safety</i>, July/August 2001, pp 13-15.</p> <p>Weisburger EK, History and background of the Threshold Limit Value Committee of the American Conference of Governmental Industrial Hygienists. <i>Chemical Health & Safety</i>, July/August 2001, pp 10-12.</p> <p>*Submit test question #5 at end of class</p>
<p>Week 6 10/11/17 Katie Schofield, PhD, CSP, ARM, CHST</p>	<p>Workers Compensation Risk Management and Injury Prevention</p> <p>Take home mid-term distributed; due 10/18/17</p> <p>Team meetings to organize TLV presentations</p>	<p>Required readings: (Levy et al, 2011). <i>Injuries & Occupational Safety</i> and (Chapter 15, pp.315-334) and <i>Musculoskeletal Disorders</i> (Chapter 16, pp: 335-365).</p> <p>Skim/Review: Levy BS, et al. (2011) <i>Legal remedies</i> (Chapter 31, pp. 664-674).</p> <p>*Submit test question #6 at end of class</p>
<p>Week 7 10/18/17 John Mulhausen, PhD</p>	<p>Chemical Hazards (vapors, mists, solids, fumes, aerosols); Biological Hazards (fungi, molds, virus, bacteria, animals)</p> <p>Take home mid-term due.</p>	<p>Required readings: Levy et al. (2011) <i>Chemical hazards</i> (Chapter 11, pp. 192-226), and <i>Biological hazards</i> (Chapter 13, pp. 281-295).</p> <p>Review these websites: https://www.osha.gov/SLTC/biologicalagents/index.html and https://www.osha.gov/SLTC/hazardoustoxicsubstances/</p> <p>*Submit test question #7 at end of class</p>
<p>Week 8 10/25/17 John Mulhausen, PhD</p>	<p>Physical/Energy Hazards (mechanical, noise, radiation, temperature, light, structures, electrical, fire, explosion, confined space)</p>	<p>Required Reading: Anna, D.H. (2011) <i>Comprehensive Exposure Assessment</i> (Chapter 9, pp.228-243) and <i>Noise, Vibration, and Ultrasound</i> (Chapter 24, pp.664-765).</p> <p>*Submit test question #8 at end of class</p>

Week 9 11/1/17 Pete Raynor, PhD	Control Measures	Anna, D.H., (2011). <i>Personal Protective Clothing</i> (Chapter 39, pp. 1234- 1252) and <i>Respiratory Protection</i> (Chapter 40,pp. 1254-1283) *Submit test question #9 at end of class
Week 10 11/8/17 Pam Hart, MPH, RN, CSP, COHN-S, CMIOSH, FAAOHN Lucy Carlson, MPH, COHN-S, CCM	Safety Financial and Business Aspects of Occupational Health and Safety	Skim/Review: Levy et al., (2011). <i>Injuries and Occupational Safety</i> . (Chapter 15, pp. 315 - 334) Required Reading: LaDou J. and Harrison R. Editors. (2014). <i>Occupational Safety</i> . (Chapter 8, pp. 654-664) Review web link: http://www.nsc.org/learn/pages/safety-at-work.aspx Reading on business aspects (TBN) *Submit test question #10 at the end of class
Week 11 11/15/17 Nancy Larson, PhD Course Instructor	Ergonomics Tour preparation	Required Reading: Anna, D.H. (2011) <i>Ergonomics</i> (Chapter 30, pp.978-1022)
Week 12 11/22/17 No Class	Complete reviews of Moodle modules (Labor, Women in the Trades) and Workplace Violence	CDC/NIOSH online module on workplace violence; Course #WB1865: http://www.cdc.gov/niosh/topics/violence/training_nurses.html Modules on Labor and Women in the Trades http://prep.ahc.umn.edu/cpheo/ustar2.cfm?activity_type_id=1#collapse11048
Week 13 11/29/17 (To Be Determined)	Worksite Walkthrough	Review website: (To be determined)
Week 14 12/6/2017 Jeff Mandel, MD, MPH	OHS Case Studies and Occupational Medicine	No readings; based on prior course content
Week 15 12/13/17 Course Instructor	TLV Presentations, discussions Course Review	*TLV Presentations Final exam distributed
Comprehensive Final Exam		Due at noon, Wed December 20

VII. 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" for incomplete status.

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. Please 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. Washable clothing is recommended. 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 be prepared to show photo identification (e.g. driver's license or passport). 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.

Course Evaluation

Beginning in fall 2008, the SPH will collect student course evaluations electronically using a software system called CoursEval: www.sph.umn.edu/courseval. The system will send email notifications to students when they can access and complete their course evaluations. Students who complete their course evaluations promptly will be able to access their final grades just as soon as the faculty member renders the grade in SPHGrades: www.sph.umn.edu/grades. All students will have access to their final grades through OneStop two weeks after the last day of the semester regardless of whether they completed their course evaluation or not. Student feedback on course content and faculty teaching skills are an important means for improving our work. Please take the time to complete a course evaluation for each of the courses for which you are registered.

Incomplete Contracts

A grade of incomplete "I" shall be assigned at the discretion of the instructor when, due to extraordinary circumstances (e.g., documented illness or hospitalization, death in family, etc.), the student was prevented from completing the work of the course on time. The assignment of an "I" requires that a contract be initiated and completed by the student before the last official day of class, and signed by both the student and instructor. If an incomplete is deemed appropriate by the instructor, the student in consultation with the instructor will specify the time and manner in which the student will complete course requirements. Extension for completion of the work will not exceed one year (or earlier if designated by the student's college). For more information and to initiate an incomplete contract, students should go to SPHGrades at: www.sph.umn.edu/grades.

University of Minnesota Uniform Grading and Transcript Policy - A link to the policy can be found at onestop.umn.edu.

VIII. Other Course Information and Policies

Grade Option Change (if applicable)

For full-semester courses, students may change their grade option, if applicable, through the second week of the semester. Grade option change deadlines for other terms (i.e. summer and half-semester courses) can be found at onestop.umn.edu.

Course Withdrawal

Students should refer to the Refund and Drop/Add Deadlines for the particular term at onestop.umn.edu for information and deadlines for withdrawing from a course. As a courtesy, students should notify their instructor and, if applicable, advisor of their intent to withdraw.

Students wishing to withdraw from a course after the noted final deadline for a particular term must contact the School of Public Health Office of Admissions and Student Resources at sph-ssc@umn.edu for further information.

Student Conduct Code

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see: http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

Use of Personal Electronic Devices in the Classroom

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom. For complete information, please reference: <http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Scholastic Dishonesty

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code: http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf) If it is determined that a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html>.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: <http://www1.umn.edu/oscai/integrity/student/index.html>. If you have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class-e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

Makeup Work for Legitimate Absences

Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see: <http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>.

Appropriate Student Use of Class Notes and Course Materials

Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Sexual Harassment

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy:

<http://regents.umn.edu/sites/default/files/policies/SexHarassment.pdf>

Equity, Diversity, Equal Opportunity, and Affirmative Action

The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy:

http://regents.umn.edu/sites/default/files/policies/Equity_Diversity_EO_AA.pdf.

Disability Accommodations

The University of Minnesota is committed to providing equitable access to learning opportunities for all students. Disability Services (DS) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DS at 612-626-1333 to arrange a confidential discussion regarding equitable access and reasonable accommodations.

If you are registered with DS and have a current letter requesting reasonable accommodations, please contact your instructor as early in the semester as possible to discuss how the accommodations will be applied in the course.

For more information, please see the DS website, <https://diversity.umn.edu/disability/>.

Mental Health and Stress Management

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, and feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

Academic Freedom and Responsibility: *for courses that do not involve students in research*

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate

dean of the college, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost. *[Customize with names and contact information as appropriate for the course/college/campus.]*

Fact Sheet (10 points)

For this assignment, you should select a current **occupational health and safety topic**. For example, you might be interested in what can be done about work-related violence, or safe patient handling. With this topic in mind, conduct a literature search, including web resources, for information on this topic.

Prepare a fact sheet (*one page minimum, two page maximum* - including your references) using the information you found 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.

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 10% of your grade

Grading Criteria	Points
Written to appropriate audience (suitable for employees and management)	1
Topic relevant to occupational health and safety	2
Overall quality of content and format (i.e., error free spelling, proper grammar and punctuation and readability, i.e., lack of technical terminology/jargon)	3
Visually interesting: used appropriate graphics and/or modified text	2
Minimum of three references – USE APA FORMAT	1
Appropriate length of document (1 page minimum, 2 page maximum)	1

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Threshold Limit Values Assignment (40 points)

For this assignment, you will choose a threshold limit value (TLV) to critique within a 30 minute presentation. You will work in a cross-functional 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. Follow the outline in constructing your presentation.

1. Describe the background and magnitude of the problem. (8 points)
 - a. What is the chemical/product?
 - b. What is it used for?
 - c. Which workers are exposed (which industries, occupations)?
 - i. How many workers are exposed?
 - d. How much of the chemical/product is currently produced?
 - i. How has this changed over time?
2. Current occupational exposure limits (TLVs, STELs, etc.) (8 points)
 - a. What are the current limits?
 - b. Are there any notations?
 - c. Primary health effects
 - i. On which health effects are the TLV based (allergic dermatitis, respiratory failure, cancer, etc.)?
 - ii. Are there other serious side effects of exposure, other than those which formed the basis for the TLV?
3. Provide a brief summary/history of the TLV. (12 points)
 - a. When were studies supporting this TLV conducted?
 - b. What types of data were used (animal, human, etc.)?
 - i. Summarize the studies (It is not sufficient to state, "Animal data were used." Describe the studies). You do not need to go into great detail, but discuss the subjects (people, mice, rabbits, etc.), what they were exposed to and how often, major conclusions, etc. Also, critically review the studies in your summary. It is not necessary to elaborate on every detail of each study. Summarize the findings, for example, "Four studies on inhalation exposure of rabbits to chemical X were conducted between 1948 and 1963. The concentrations varied between X and Y, the duration of exposure was consistently 3 times a day for 2 weeks (etc.)," then summarize the findings.
 - c. Do the 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, and if so, WHY did it change?
 - e. What studies have been published since the current TLV was established? For example, the 7th edition of the documentation was published in 2001. What has happened since 2001?

4. Present your agreement with the current TLV. (8 points)
 - a. Do you agree with the current levels? You must choose a position; do not simply state that more research is necessary. Make your position obvious, "Based on these data, we think the level should be _____, because _____."
 - i. What TLV would you recommend (be specific)?
 - ii. Why do you agree (or disagree) with the levels?
 - b. 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 4 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).