

**Course Title:** Principles of Occupational and Environmental Health

**Course Number:** ENOH 0693

**Course Pre- and Co-requisite(s):** Introduction to Environmental Health. This pre-requisite may be waived for qualifying exceptions by the instructor.

**Course Location:** Rutgers School of Public Health, Piscataway—EOHSI Room 402

**Course Date & Time:** 6:00-8:00 PM, Tuesday Evenings, 9/3/2019-12/10/2019

**Course Instructor:** *Michael E. Pratt, MD MPH, Assistant Professor, [pratt@eohsi.rutgers.edu](mailto:pratt@eohsi.rutgers.edu), (848)-445-6048*

**Office Hours:** *By Appointment Only*

**Course Assistant:** *None*

**Course Website:** <https://rutgers.instructure.com/courses/25813>

**Additional/Supplemental Readings/Resources:**

Current Occupational & Environmental Medicine by LaDou and Harrison: Fifth Edition (McGraw-Hill Companies)

ISBN-10: 0071808159

NOTE: An electronic version of this book is in the ACCESSMedicine database available through [my.rutgers.edu](http://my.rutgers.edu)→Research tab→Library Channel→Research→Library Resources→Databases→Biomedical→Related→ACCESSMedicine.

**Course Description:** The purpose of this course is to convey the principles that underlie the recognition and control of workplace health hazards and address some of the injuries and illnesses related to workplace exposures.

**Selected Concentration Competencies Addressed:**

**A. For the MPH in Occupational and Environmental Medicine (OEM)**

1. Articulate occupational safety and health issues in the workplace and as applicable the related exposure risks to the general public as well as to vulnerable communities or susceptible sub-populations;
2. Explain basic mechanisms of toxicology and dose-response regarding occupational toxicants;
3. Apply federal and state regulatory standards which are related to worker (occupational) safety and health protection;
4. Evaluate the impact that environmental factors have on vulnerable populations

**B. For the MPH in Occupational Safety and Health (OSH)**

1. Identify occupational safety and health issues in the workplace and as applicable the related exposure risks to the general public as well as to vulnerable communities or susceptible sub-populations
2. Explain basic mechanisms of toxicology and dose-response regarding occupational toxicants

3. Apply federal and state regulatory standards which are related to worker (occupational) safety and health protection

**C. For the MPH in Environmental Health Sciences (EHS)**

1. Describe the major environmental health problems facing the general public as well as among specific communities or susceptible, vulnerable sub-populations
2. Explain the basic mechanism of toxicology and dose-response as applied to environmental toxicants
3. Describe the federal and state regulatory programs that relate to environmental (community) protection

Please visit the Concentration webpages on the School of Public Health’s website at [sph.rutgers.edu](http://sph.rutgers.edu) for additional competencies addressed by this course for other degrees and concentrations.

**Course Objectives:** Upon completion of the course, the students will be able to:

- a) Understand the major principles guiding the field of occupational health
- b) Demonstrate how to take an occupational health history
- c) Understand the major categories of effects of physical agents, biological agents, chemical agents, and psychosocial factors
- d) Examine specific workplace problems (toxicology, ergonomics, indoor air-pollution)
- e) Describe the musculoskeletal injuries that can occur in the workplace
- f) Understand the health effects of workplace hazards
- g) Apply the principles of hazard recognition and control to promote workplace health and safety
- h) Demonstrate a foundational knowledge of occupational and environmental health: programs, databases, regulatory agencies, and laws (including ADA and Workers’ Compensation)

**A. For the MPH in Occupational and Environmental Medicine (OEM) \*DB=Discussion Boards**

OEM Competency	Course Objectives(s)	Lessons	Assessment(s)
1	a, c, d, e, f, g	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13	Quizzes, DB*, Paper, Presentations
2	a, c, d, f	3, 7, 8, 9, 10, 11, 12, 13	Quizzes
3	d, g, h	2, 5, 7, 8, 10, 12	Quizzes, DB, Paper, Presentations
4	a, c, d, e, g, h	2, 4, 6, 7, 8, 9, 10, 11, 12, 13	DB, Paper, Presentation

**B. For the MPH in Occupational Safety and Health (OSH)**

OSH Competency	Course Objectives(s)	Lessons	Assessment(s)
1	a, c, d, e, f, g	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13	Quizzes, DB*, Paper, Presentations
2	a, c, d, f	3, 7, 8, 9, 10, 11, 12, 13	Quizzes
3	d, g, h	2, 5, 7, 8, 10, 12	Quizzes, DB, Paper, Presentations

**C. For the MPH in Environmental Health Sciences (EHS)**

EHS Competency	Course Objectives(s)	Lessons	Assessment(s)
1	a, c, d, e, f, g	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13	Quizzes, DB*, Paper, Presentations
2	a, c, d, f	3, 7, 8, 9, 10, 11, 12, 13	Quizzes
3	d, g, h	2, 5, 7, 8, 10, 12	Quizzes, DB, Paper, Presentations

**Course Requirements and Grading:**

1. Oral Presentation 300 points
2. Paper 300 points
3. Quizzes 300 points
4. Participation/Attendance 100 points

Course Grading (based on % of 1000 points):

### Guidelines for Participation

- 1) All students are expected to read their assignments prior to the applicable lesson and to be able to discuss answers to the reading questions in class.
- 2) All students are required to participate in the weekly Principles of Occupational and Environmental Health discussion boards found in Canvas. Points will be weighted in favor of:
  - Quality posts (anytime)
  - Posts that start a thoughtful thread of discussion on newly opened boards (Tuesdays, Wednesdays, and Thursdays)

Participation points will be assigned as follows:

- Lecture attendance and classroom participation (10 points max)
- Discussion boards and other online 30 activities (90 points max)

### Online 30

Most weeks there will be assigned readings and questions to guide reading. The assigned readings should be completed prior to class to prepare for class discussions on that week's lecture topics. The reading questions are not graded, but are to emphasize the important points from the reading assignment that may be covered in quizzes. The discussion boards are for out-of-class journal discussions relevant to the lectures presented that week and are graded with participation points. Other activities may be substituted for reading assignments and discussion boards at the discretion of the instructor(s).

### Guidelines for Paper due on 11/5/2019

Your paper will address occupational health practices in a specific occupational sector. It includes, but is not limited to:

- Background
- Pertinent statistical information and trends derived from databases (e.g. Bureau of Labor Statistics)
- Applicable laws and regulations, including governmental agencies
- Occupations in the sector and typical work hazards and controls
- Discussion about improved population health and safety in the occupational sector
- Pertinent resources and references

Topics must be pre-approved and may **NOT** include the occupational sector you will present orally in December. More details about the paper will be given in class on 9/27/2016. The paper length may not exceed 10 pages (excluding charts/tables in appendix). Please refer to the School of Public Health Honor Code for expectations regarding work originality.

### Guidelines for Oral Presentation on 12/10/2019

Select an occupation, and identify a specific worker. Follow that worker for at least half a day:

- Describe the job duties and observe the work practices.
- Identify any hazards on the job; including physical, chemical, biological and psychological hazards.
- Describe the adequacy of any safety or protective measures that are currently in use by the worker(s), including engineering controls, administrative controls and personal protective equipment.
- Recommend specific changes (protective measures) that will reduce worker hazardous exposure.

Incorporate the principles you have learned during the POEH coursework. You may also use the course textbook as a guide in describing hazards. Your observations and recommendations must be based on scientific evidence and must have practical applications.

- Prepare a power point presentation based on your findings above.
- Duration of presentation is 15 minutes (+ 5minutes for questions)
- I recommend 15 power point slides.
- \*\*Relevant pictures of the work process(es) should be included in your presentation.

You should identify the occupation and person you wish to follow early in November and get the proper permissions including those for photographs of worksite and individuals being photographed. Topics must be pre-approved.

Note: Please provide Dr. Pratt with an electronic version of your power point presentation (via e-mail) on or before 6pm Friday December 6, 2019.

### Final Quiz (100 points)

The final quiz is comprehensive over the entire semester and will cover lecture content and assigned reading in Occupational & Environmental Medicine by LaDou and Harrison.

<i>Grading Policy:</i>	94 – 100	A
	90 – <94	A-
	87 – <90	B+
	84 – <87	B
	80 – <84	B-
	77 – <80	C+
	70 – <77	C
	<70	F

### Course Schedule:

Date	Topic	Instructor
9/3/2019	<b>Lesson 1:</b>	
	Course Introduction	Pratt
	Introduction to Occupational & Environmental Health	Udasin
	Occupational History Taking	Udasin
	Medical Surveillance	Udasin
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	International Occupational & Environmental Health	2
	The Occupational & Environmental Medical History	4
	Medical Surveillance	41
	<u>Discussion Board 1</u>	
<u>Practice Quiz</u>		
9/10/2019	<b>Lesson 2:</b>	
	Introduction to Respiratory Protection	Laumbach
	Evaluation and Control of Exposure to Airborne Contaminants	Laumbach

	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Occupational Safety	38
	Industrial (Occupational) Hygiene	39
	<u>Discussion Board 2</u>	
9/17/2019	<b>Lesson 3:</b>	
	Occupational toxicology	Gochfeld
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Occupational Toxicology	16
	<u>Discussion Board 3</u>	
	<u>Quiz 1—Open between Sep 21 at 12 am to Sep 23 at 11:59 pm</u>	
9/24/2019	<b>Lesson 4:</b>	
	Occupational Health Concerns of Health Care Workers	Udasin
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Occupational Infections	20
	<u>Discussion Board 4</u>	
10/1/2019	<b>Lesson 5:</b>	
	Regulatory Agencies, Workers' Compensation, Disability Management	Pratt
	Occupational Health Databases	Pratt
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Workers' Compensation and Disability	6
	Disability Management & Prevention	7
	Disease Surveillance	40
	<u>Discussion Board 5</u>	
10/8/2019	<b>Lesson 6:</b>	
	Work-related Musculoskeletal Disorders and Ergonomics	Pratt
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Musculoskeletal Injuries	8
	Shoulder, Elbow, & Hand Injuries	9
	Back and Lower Extremity Injuries	10
	Ergonomics & the Prevention of Occupational Injuries	15
	<u>Discussion Board 6</u>	
	<u>Quiz 2</u>	
10/15/2019	<b>Lesson 7:</b>	

	Chemical, Solvent, & Pesticide Hazards	Pratt
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Chemicals	31
	Solvents	32
	Pesticides	34
	<u>Discussion Board 7</u>	
10/22/2019	<b>Lesson 8:</b>	
	Noise and Radiation	Laumbach
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Hearing Loss	13
	Injuries Caused by Physical Hazards	14
	<u>Discussion Board 8</u>	
	<u>Quiz 3</u>	
10/29/2019	<b>Lesson 9:</b>	
	Heavy Metals, Hazards to the Liver and Kidneys	Gochfeld
	Ethical Challenges in the Workplace and Safety	Gochfeld
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Liver Toxicology	25
	Renal Toxicology	26
	Metals	30
	<u>No Discussion Board this week</u>	
11/5/2019	<b>Lesson 10:</b>	
	Reproductive Toxicology	Udasin
	Americans with Disabilities Act (ADA)	Udasin
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Female Reproductive Toxicology	28
	Male Reproductive Toxicology	29
	<u>Discussion Board 9</u>	
	<b><u>PAPER DUE November 5</u></b>	
	<u>Quiz 4</u>	
11/12/2019	<b>Lesson 11:</b>	
	Occupational Lung Diseases	Kipen
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Occupational Lung Diseases	23
	<u>Discussion Board 10—Final Discussion Board</u>	
	<u>Oral Presentation Guidelines &amp; Instructions—see</u>	Pratt

online syllabus

11/19/2019	No Class	
11/26/2019	<b>Lesson 12:</b>	
	Occupational Cancer and Carcinogens	Kipen
	Indoor Air Quality/Unexplained Symptoms	Kipen
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Occupational Cancer	19
	Outdoor Air Pollution	46
	Building-Associated Illness	47
	<b><u>Reminder: Final Quiz is December 3 from 5-6 pm</u></b>	
12/3/2019	<b><u>Final Quiz</u></b>	
	<b>Lesson 13:</b>	
	Neurotoxicity and Neurobehavioral Toxicology	Fiedler
	Depression in the Workplace	Fiedler
	<u>Reading Assignment &amp; Questions (preparation for this lesson)—see online syllabus in Canvas:</u>	Chapter:
	Neurotoxicology	27
	<b><u>Oral Presentation Slides Due 6 pm Friday, December 6</u></b>	
12/10/2019	<b><u>Oral Presentations</u></b>	Pratt

**Learning Management System:** Canvas will be used extensively throughout the semester for course syllabus, assignments, announcements, communication and/or other course-related activities. It is the student's responsibility to familiarize themselves with Canvas and check it regularly. If you have difficulties accessing Canvas, please inform the instructor and Canvas Support ([help@canvas.rutgers.edu](mailto:help@canvas.rutgers.edu)). Canvas is accessible at [canvas.rutgers.edu](http://canvas.rutgers.edu).

**School of Public Health Honor Code:** The School of Public Health Honor Code is found in the School Catalog ([sph.rutgers.edu/academics/catalog.html](http://sph.rutgers.edu/academics/catalog.html)). Each student bears a fundamental responsibility for maintaining academic integrity and intellectual honesty in his or her graduate work. For example, all students are expected to observe the generally accepted principles of scholarly work, to submit their own rather than another's work, to refrain from falsifying data, and to refrain from receiving and/or giving aid on examinations or other assigned work requiring independent effort. In submitting written material, the writer takes full responsibility for the work as a whole and implies that, except as properly noted by use of quotation marks, footnotes, etc., both the ideas and the works used are his or her own. In addition to maintaining personal academic integrity, each student is expected to contribute to the academic integrity of the School community by not facilitating inappropriate use of her/his own work by others and by reporting acts of academic dishonesty by others to an appropriate school authority. It should be clearly understood that plagiarism, cheating, or other forms of academic dishonesty will not be tolerated and can lead to sanctions up to and including separation from the Rutgers School of Public Health.

**Students with Disabilities:** Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student must apply for Services by first completing a Registration Form with the Rutgers Office of Disability Services (ODS) at [ods.rutgers.edu](http://ods.rutgers.edu). The student will also be required to participate in an ODS intake interview and provide documentation. If reasonable accommodations are granted, ODS will provide you with a Letter of Accommodations which should be shared with your instructors as early in your courses as possible.

**Commitment to Safe Learning Environment:** The Rutgers School of Public Health is committed to helping create a safe learning environment for all students and for the School as a whole. Free expression in an academic community is essential to the mission of providing the highest caliber of education possible. The School encourages civil discourse, reasoned thought, sustained discussion, and constructive engagement. Provocative ideas respectfully presented are an expected result. An enlightened academic community, however, connects freedom with responsibility. The School encourages all students to disclose any situations where you may feel unsafe, discriminated against, or harassed. Harassment or discrimination of any kind will be not tolerated and violations may lead to disciplinary actions.

**Reporting Discrimination or Harassment:** If you experience any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, know that help and support are available. You may report such incidents to the [RBHS Title IX Office](#) or to the School of Public Health's [Office of Student Affairs](#). Rutgers University has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. If you experience any other form of discrimination or harassment, including racial, ethnic, religious, political, or academic, please report any such incidents to the School's [Office of Student Affairs](#). The School strongly encourages all students to report any incidents of discrimination or harassment to the School. Please be aware that all Rutgers employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers as listed in Appendix A to [Policy 10.3.12](#)) are required to report information about such discrimination and harassment to the School and potentially the University. For example, if you tell a faculty or staff member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty or staff member must share that information with the [RBHS Title IX Coordinator](#). If you wish to speak to a confidential employee who does not have this reporting responsibility, you can find a list of resources in Appendix A to University [Policy 10.3.12](#). For more information about your options at Rutgers, please visit [Rutgers Violence Prevention and Victim Assistance](#).

**Graduate Student Computer Policy:** Students are required to possess a personal laptop, no older than approximately two years, that must meet minimum requirements which may be found online at: [sph.rutgers.edu/student-life/computer-support.html](http://sph.rutgers.edu/student-life/computer-support.html)

**Policy Concerning Use of Recording Devices and Other Electronic Communications Systems:** When personally owned communication/recording devices are used by students to record lectures and/or classroom lessons, such use must be authorized by the faculty member or instructor who must give either oral or written permission prior to the start of the semester and identify restrictions, if any, on the use of mobile communications or recording devices.

**Policy Concerning Use of Turnitin:** Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com (directly or via learning management system, i.e. Canvas) for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site. Students who do not agree should contact the course instructor immediately.

**Withdrawal/Refund Schedule:** Students who stop attending their course(s) without submitting a completed [Add/Drop Course](#) form will receive a failing grade. Furthermore, students dropping to zero credits for the semester are considered withdrawn and must submit a completed [Leave of Absence](#) form from the School of Public Health's Office of Student Affairs. The School of Public Health refunds tuition only. Administrative and technology fees are non-refundable. You may find the Withdrawal/Refund Schedule on the School of Public Health website at: [sph.rutgers.edu/academics/academic-calendar.html](http://sph.rutgers.edu/academics/academic-calendar.html)