Principles of Occupational and Environmental Health ENOH 0693

COURSE BASICS

Course Prerequisite(s): *Introduction to Environmental Health is a co-requisite.*

Course Instructor: Michael E. Pratt, MD MPH, Assistant Professor Contact Information: <u>pratt@eohsi.rutgers.edu</u>, (848)-445-6048

Office Hours: Virtual (Zoom) Appointments Only

Course Location: In person, Conference Room C, Environmental and Occupational Health Sciences Institute (EOHSI). This is a 5 minute walk from the School of Public Health and is across from the Medical School Building.

Course Date & Time: 6:00-8:00 PM, Tuesday Evenings, 9/x/2023-12/x/2023

Course Assistants: (None) Contact Information: NA

Course Website: Access course via canvas.rutgers.edu using NetId and Password

Required Course Textbook: <u>Current Diagnosis & Treatment | Occupational & Environmental Medicine</u> by LaDou and Harrison: Sixth Edition (McGraw-Hill Companies | LANGE) ISBN-10: 1260143430

MPORTANT NOTES:

- 1. A FREE electronic version of this book is in the **ACCESSMedicine** database available through my.rutgers.edu. Go to the **Research** tab and select **Databases**. In the drop-down box select **Biomedical Sciences**. Look for **ACCESSMedicine** in the listing. Search for LaDou and it should bring up the book. Be sure to obtain the **sixth** edition. Both 5th and 6th editions are available through ACCESSMedicine.
- 2. The instructor reserves the right to modify lecture, paper, presentation, and quiz dates, content, and requirements. You will be given notice of any major changes to the syllabus/modules.
- 3. If you should need to quarantine for illness-related reasons, a zoom-option will be provided if available.

Additional/Supplemental Readings/Resources: Add references for other course resources, if not applicable delete

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.

COURSE COMPETENCIES

The competencies addressed in this course 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

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

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 for more information about the curriculum and competencies for our degrees and concentrations.

Course Objectives: Provide a bulleted list of the objectives of the course (do not present as a paragraph). Begin this section with the following statement: By the completion of this course, 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)

This table lists the competencies, objectives along with the lessons and assessments where they are met

		where they are met			
For the MPH in Occupational and Environmental Medicine (OEM)					
OEM Competency	Course Objectives	Lessons	Assessments		
1	A, C, D, E, F, G	1-14	Quizzes, Discussion Boards, Paper, Oral Presentation		
2	A, C, D, F	2, 3, 8, 9, 12, 14	Quiz		
3	D, G, H	1, 2, 4, 5, 7, 9, 10, 11, 12	Quizzes, Discussion Boards, Paper, Oral Presentation		
4	A, C, D, E, G, H	6, 7, 10, 12	Discussion Boards, Presentation		
For the MI	For the MPH in Occupational Safety and Health (OSH)				
OSH Competency	Lecons Accesments				
1	A, C, D, E, F, G	1-14	Quizzes, Discussion Boards, Paper, Presentation		
2	A, C, D, F	1, 2, 4, 5, 7, 9, 10, 11, 12	Quizzes		
3	D, G, H	2, 5, 6, 7, 8, 10	Quizzes, Discussion Boards, Paper, Presentation		
For the MPH in Environmental Health Sciences (EHS)					
EHS Competency	Course Objectives	Lessons	Assessments		

1	A, C, D, E, F, G	1-14	Quizzes, Discussion Boards, Paper, Presentation
2	A, C, D, F	2, 3, 8, 9, 12, 14	Quizzes
3	D, G, H		Quizzes, Discussion Boards, Paper, Presentation

COURSE REQUIREMENTS

Course Requirements and Grading:

This table contain required activities and their grade value

ACTIVITY	DUE	GRADE VALUE	GRADE PERCENT
Oral Presentation		250 points	25%
Paper		250 points	25%
Quizzes 40 points x 4 quizzes, 90 points for final quiz		250 points	25%
Discussion Boards 20 points/discussion board; 11 discussion boards		220 points	22%
Participation/Attendance 3 points/module up to 30 points max		30 points	3%

Course Grading (based on %):

Guidelines for Participation

- After the first module, 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.
- All students are required to participate in the weekly Principles of Occupational and Environmental Health discussion boards found in Canvas.
- Lecture attendance and classroom participation (30 points max/semester; 1 point/week for classroom attendance or excused absence; 1 point per week for class participation = 2 points max/week)
- Discussion boards and other online 30 activities (220 points max; see each module's discussion board instructions for details)

• Additional substantive comments, beyond weekly discussion board point maximum is encouraged. If participation points are not maxed out for the week, outstanding discussion board participation may be awarded, at the discretion of the instructor, up to the participation point max (2/week). Awarding points in this manner is atypical and is NOT a substitute for regular classroom attendance or participation.

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 typically journal discussions relevant to the lectures presented that week and are graded with points. Other activities may be substituted for reading assignments and discussion boards at the discretion of the instructor(s).

Guidelines for Paper

Your paper will articulate occupational safety & health issues, and 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 Federal and State 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 (in general public, vulnerable communities or susceptible populations)
- 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. The paper length may not exceed 10 pages (excluding charts/tables in appendix). The paper should be in APA style. Please refer to the School of Public Health Honor Code for expectations regarding work originality.

Guidelines for Oral Presentation

Select an occupation and identify a specific worker (from the general public, vulnerable community or susceptible population). Follow that worker for at least half a day:

- Describe the job duties and observe the work practices.
- Identify any hazards (exposure risks) on the job, including physical, chemical, biological and psychological hazards.
- Evaluate the impact of environmental factors and 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 (+ 5 minutes for questions)
- I recommend about 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 email) on or before 6pm Friday December 15, 2023.

Final Quiz (90 points)

The final quiz is comprehensive over the entire semester and will cover lecture content, discussion board content, and assigned reading in Occupational & Environmental Medicine by LaDou and Harrison. The final quiz is hand-written, closed book and in-person. No electronic equipment is permitted during this session.

Grading Policy (%)*

This table contains numerical and letter grades

Numeric Value	Letter Value
94 -100	A
90 - <94	A-
87 - <90	B+
84 - <87	В
80 - <84	B-
77 - <80	C+
70 - <77	С
<70	F

*Grades will not be rounded.

COURSE SCHEDULE

This table list the topics, assessments and the competencies linked to them

WEEK/MOD		ASSIGNMENTS/ASSESSM	INSTRUCTOR/LECT
ULE	TOPIC(S)	ENTS	URER
9/6/2022 - 1	 Introduction to Course and Occupational & Environmental Health How US Laws are Made Regulatory Agencies Occupational Health Databases 	Readings: Chapter 46: Principles of Environmental Health Chapter 1: The Practice of Occupational Medicine (Introduction & Federal Agencies) Videos:	Dr. Pratt
9/13/2022 - 2	Environmental	- T	Dr. Udasin

		T	
		Mercury intake from fish spreadsheet	
		Videos:	
		PharmacodynamicsPart 2: Dose-response relationship	
		Minamata Bay Mercury Poisoning	
		Discussion Board 3	
		Text Book Reading Questions	
		Quiz 1 - Open between Sept. 25 at 12am to Sept. 27 at 11:59pm	
		Readings:	
		Chapter 39: Occupational Safety	
		Chapter 40: Industrial (Occupational) Hygiene	
	• Introduction to Respiratory	Videos:	
9/27/2022 - 4	ProtectionEvaluation and Control of		Dr. Laumbach
7,27,2022	Exposure to Airborne Contaminants	Respiratory Protection in Construction	51. Laumouch
	Contaminants	Supplemental reading:	
		Collier. 1939. The future of Industrial Hygiene and Medicine	
		Discussion Board 4	
		Text Book Questions	
10/4/2022 - 5	Work-related Musculoskeleta	Required Readings:	Dr. Pratt

	l Disorders and Ergonomic	Chapter 6: Ergonomics & the Prevention of Occupational	
	S	Injuries	
		Optional Readings (Use to supplement lecture):	
		Chapter 7: Musculoskeletal Injuries	
		Chapter 8: Shoulder, Elbow, & Hand Injuries	
		Chapter 9: Back and Lower Extremity Injuries	
		Videos:	
		Ergonomics Awareness	
		Musculoskeletal Injury Prevention	
		Discussion Board 5	
		Text Book Questions	
		Readings:	
		Chapter 3: Workers' Compensation and Disability	
		Chapter 5: Disability Management & Prevention	
10/11/2022 - 6	Workers' Compensation	Videos:	Dr. Pratt
10/11/2022 - 0	and DisabilityOccupational	Workers Compensation	171. 1 I au
	Occupational Health Care Disparities	Maximum Medical Improvement	
		Discussion Board 6	
		Text Book Questions	

		Quiz 2 - Open between Oct. 16 at 12am to Oct. 18 at 11:59pm	
10/18/2022 - 7	Occupational Health Concerns of Health Care Workers	Readings: Chapter: 16: Occupational Infections Videos: SAFE Healthcare: Supervision Part 2 5 Nursing Job Hazards Every Nurse Should Know Discussion Board 7 Text Book Questions	Dr. Udasin
10/25/2022 - 8	• Chemical, Solvent, & Pesticide Hazards	Readings: Chapter: 30: Chemicals Chapter 31: Solvents Chapter 33: Pesticides Videos: Safe handling of solvents Chemical Handling Safety Pesticides in Forestry, A Workers' Guide to Safe Practices Vinyl Chloride Production Pesticides-DDT-Rachel Carson-Silent Spring Discussion Board 8	Dr. Pratt

		Text Book Questions	
11/1/2022 - 9	Noise and Radiation	Readings: Chapter 12: Hearing Loss Chapter 13: Injuries Caused by Physical Hazards Videos: Types of Nuclear Radiation Noise-Induced Hearing Loss Reading the Audiogram Hearing Loss and Speech Discussion Board 9 Text Book Questions Quiz 3 - Open between Nov. 6 @ 12am to Nov. 8 at 11:59pm	Dr. Laumbach
11/8/2022 - 10	 Reproductive Toxicology Americans with Disabilities Act (ADA) 	Readings: Chapter 27: Female Reproductive Toxicology Chapter 28: Male Reproductive Toxicology Videos:	Dr. Udasin

		PAPER DUE NOVEMBER	
		15 Readings:	
		Chapter 18: Upper Respiratory Tract Disorders	
		Chapter 19: Occupational Lung Diseases	
	Occupational	Videos:	
11/15/2022 - 11	Lung Diseases	Occupational Lung Disease	Dr. Kipen
		Stop Silicosis	
		Asbestosis: Causes, Signs and Symptoms, Diagnosis	
		Discussion Board 11	
		Text Book Questions	
11/22/2022	NO LECTURE THIS WEEK	Quiz 4. Opens November 27th and closes November 29	
		Readings:	
	• Ethical	Chapter 4: Ethics in Occupational Medicine	
	Challenges in Occupational	Videos:	
11/29/2022 - 12	and Environmental	Ethical Decision Making	Dr. Gochfeld
	Health	Ethical Principles	
		Optional Discussion Board 12: Review	
		Text Book Questions	
12/6/2022 - 13	 Occupational Cancer and Carcinogens 	Readings: Chapter 25: Occupational	Dr. Kipen
	Indoor Air Quality and	Cancer 23. Georgianonal	·

	Unexplained Symptoms	Chapter 50: Air Pollution Chapter 53: Building-Related Illness Videos: Air Pollution Text Book Questions Reminder: Final Quiz is December 13 from 6pm - 8pm	
12/13/2022 - 14	Final Quiz (in class, closed book and note, written) • VIDEO LECTURE: Neurotoxicology	Required Readings: Chapter 23: Neurotoxicology Chapter 38 Workplace Violence Prevention Optional Reading: Chapter 36: Occupational Mental Health & Substance Use Disorders Chapter 37: Fatigue, Shiftwork, & Sleep Disorders Videos: Lecture by Dr. Fiedler on Neurotoxicology	Dr. Fiedler
12/20/2022 - 15	Oral Presentations	Oral Presentations:	Dr. Pratt

ASSIGNMENT STANDARDS

Lateness. Assignments turned in after the official collection period are considered late. Unless the instructor and student come to an arrangement at least one week before class, there is a point penalty for written work turned in late. Assignments are posted to Canvas by the due date. If you need to turn in something after the date due, please discuss it with the instructor to avoid point penalty.

Grammar/Spelling. If more than eight (8) gross punctuation, grammar or spelling errors occur in the written assignments, they may be returned for re-submission and/or incur a grade penalty.

Citations. Preferred citation style for references in written assignments will be American Psychological Association (APA). Please use this APA citation style for electronic references.

Margins and Page Limits Requirements. Refer to each assignment instructions for margins and page limit requirements. A deduction of 10% may occur if assignment over the maximum page limit. Instructions available on Canvas.

Extra Credit (if offered). Extra credit opportunities will be posted.

SCHOOL POLICIES

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@oit.rutgers.edu). Canvas is accessible at 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). 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 <u>ods.rutgers.edu</u>. 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.

Student Well-Being: The School of Public Health recognizes that students may experience stressors or challenges that can impact both their academic experience and their personal well-being. If the source of your stressors or challenges is academic, students are encouraged to discuss these challenges and circumstances with their instructor, if they feel they may need additional support or temporary accommodations at the beginning or during this course. The course instructor may consider making reasonable temporary adjustments depending on the student's situation. For personal concerns or if additional support is needed, students may reach out to the Office of Student Affairs (studentaffairs@sph.rutgers.edu) or any of the appropriate referral resources listed on the SPH Student Connect Canvas page.

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 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 . 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.

Overview of School Policies: Academic and non-academic policies and procedures, such Auditing a Course, Retaking Courses, Grade Grievance and others that cover registration, courses and grading, academic standing and progress, student rights and responsibilities, graduation and more may be found under <u>Policies</u> on the School of Public Health website. Below are select specific policies; however, students are responsible for keeping informed about academic and non-academic policies and procedures beyond those noted on this syllabus.

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

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 Leave of Absence form will receive a failing grade. Furthermore, students dropping to zero credits for the semester are considered withdrawn and must submit a completed 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