**OEHS-6340 – Advanced Occupational and Environmental Health**

*Spring 2026*

Credit Hours: *Three*

**Instructor**: Dalia Nessim, MD, MPH, Dipl. ABLM,FACOEM
**Office**: H238 (H Building 2nd floor)
**Phone**: 903-877-1412 **Email:** dalia.nessim@uttyler.edu
The best way to contact me is by email.
**Office Hours**: Fridays 8 am – 3 pm, and by appointment.

**Course Overview**: This course aims at providing students with the opportunity to enhance public health knowledge and examine a critical and/or emerging issue in public and environmental health. There will be a focus on environmental/occupational health, with special emphasis on major organ systems affected by occupational and environmental agents, and some of the physical, chemical and biological encounters in the environment and the workplaces. Students will learn how to apply this knowledge to solve real-world problems.

**Prerequisite:** consent of the instructor **Co-requisite:** None

**Student Learning Outcomes (SLO or "course objective"):**

1. Students expand their current knowledge in major organ systems affected by occupational and environmental agents with an emphasis on specific agents/chemical effects in humans.
2. Students become familiar with major physical and biological hazards found in the environment and the workplace and their impact on human health.
3. Students are provided with opportunities to apply/synthesize knowledge gained from this course to solve practical, real-world problems by liberal use of examples and case scenarios. Students develop or enhance skills in project identification, development, management, implementation, evaluation, communication, and/or dissemination.

## MPH Program Competencies:

### Competencies met by this course are in BOLD

| CEPH Competencies |
|---|
| *Evidence-based Approaches to Public Health* |
| 1. Apply epidemiological methods to settings and situations in public health practice |
| 2. Select quantitative and qualitative data collection methods appropriate for a given public health context |

3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate
4. Interpret results of data analysis for public health research, policy, or practice

*Public Health & Health Care Systems*

5. Compare the organization, structure, and function of health care, public health, and regulatory systems across national and international settings
6. Discuss the means by which structural bias, social inequities, and racism undermine health and create challenges to achieving health equity at organizational, community and systemic levels

*Planning & Management to Promote Health*

7. Assess population needs, assets, and capacities that affect communities' health
8. Apply awareness of cultural values and practices to the design, implementation, or critique of public health policies or programs
9. **Design a population-based policy, program, project, or intervention**
10. Explain basic principles and tools of budget and resource management
11. Select methods to evaluate public health programs

*Policy in Public Health*

12. Discuss the policy-making process, including the roles of ethics and evidence
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
14. Advocate for political, social, or economic policies and programs that will improve health in diverse populations
15. Evaluate policies for their impact on public health and health equity

*Leadership*

16. **Apply leadership and/or management principles to address a relevant issue**
17. Apply negotiation and mediation skills to address organizational or community challenges

*Communication*

18. Select communication strategies for different audiences and sectors
19. **Communicate audience-appropriate (i.e., non-academic, non-peer audience) public health content, both in writing and through oral presentation**
20. Describe the importance of cultural competence in communicating public health content

*Interprofessional and/or Intersectoral Practice*

21. **Integrate perspectives from other sectors and/or professions to promote and advance population health**

*Systems Thinking*

22. Apply a systems thinking tool to visually represent a public health issue in a format other than standard narrative

23. Utilize community assessment and analysis tools to address factors that contribute to disparities in rural populations

24. Develop a risk assessment and management plan relevant to PH programs and services

25. Develop strategies for obtaining resources for PH programs, projects, and services

**26. Evaluate major environmental laws and their effects on environmental factors in health.**

**27. Examine occupation as a social determinant of health**.

**Instructional Methods**

***Canvas*** is the online learning system used in the course. All communications must go through canvas, and you must use your patriot email account for any communications.

Please set up notifications from Canvas for this course to any additional email account you may use, to ensure you receive notifications from this course. Failure to read your emails is not an excuse for late or missing assignments.

***Announcements are made through canvas*** regarding any change or communication required for the course. Please look at announcements at least daily.

***Readings***
You are expected to complete all weekly assigned readings. Beyond the assigned readings students may be required to use various sources of information (e.g., print and online books, newspapers, peer-reviewed journal articles, relevant professional organization's websites, government websites and legal documents) to explore or address topics covered each week. This provides a broader context of the concepts and principles presented in the course and allows for more meaningful dialogue in online discussions. Please share your findings with the class and use them as references in your submitted assignments which include discussion board postings, presentations, and research papers.
You are responsible for any additional materials provided, so please check Canvas regularly.

**Recommended Textbooks and Readings:**
CURRENT Diagnosis & Treatment Occupational & Environmental Medicine, 6th Edition by Joseph Ladou and Robert Harrison (e-book present in the UTHSCT Library).
Occupational and Environmental Health 7th Edition by Barry S. Levy (Editor), David H. Wegman (Editor)

**Assessment of selected competencies**

| Foundational Competency | Assignment | Assessment |
|---|---|---|
| 9. Design a population-based policy, program, project, or intervention | Case Scenario Exercise | Assessment of basic information from the course to solve a practical problem. Assesses critical thinking and understanding of basic principles and application in an intervention. |
| 16. Apply leadership and/or management principles to address a relevant issue. | As above | As above |
| 19. Communicate audience-appropriate (i.e., non-academic, non-peer audience) public health content, both in writing and through oral presentation | As above | Case Scenario Report and Oral Presentation will be assessed according to Rubric. |
| 21. Integrate perspectives from other sectors and/or professions to promote and advance population health | Discussion Questions Mid-term and Final Exams | Discussion questions assess understanding of each module. Exams assess knowledge and practical application of knowledge learned. |
| **UT Tyler MPH Program Competency** | **Assignment** | **Assessment** |
| 26. Evaluate major environmental laws and their effects on environmental factors in health.<br><br>27. Examine occupation as a social determinant of health | Discussion Questions Mid-term and Final Exams | Discussion questions assess understanding of each module. Exams assess knowledge and practical application of knowledge learned. |

**<u>Assessments:</u>**

- Complete the required weekly hours and related assignments.
- Participate in all class discussions.
- Points will be deducted if assignments are submitted after the due date.
- Students are expected to develop a written or oral presentation that will be utilized for the assessment of student learning outcomes (case scenario).

Distribution of grading points is as follows:

- Participation and weekly discussion questions and/or quizzes: 40%

- Mid-term exam: 20%

- Case Scenario exercise: 20%

- Final Exam: 20%

This course will include a student work-up of a case scenario. There will be a selection of cases for the student to choose from. The case scenario is a practical problem-solving exercise designed to use information from class to solve real-world practical environmental toxicology problems. Although other students will likely work on the same case scenario, each student should work alone in developing their case. Each of you is unique and your unique background will guide your responses to the case scenarios. Students will present their case scenarios in class. These presentations should be limited to 10-15 minutes and can be in any format chosen by the student. Students should not just read off the slides and will lose points for reading off the slides.

Oral reports will be graded based on the students' measured response to the issues raised in the case scenario. This exercise should be interesting to work on and serve two purposes: (1) require the student to use information to solve problems, and (2) serve as a practical example of what you might be asked to do if you were employed in an environmental consulting company.

Mid-term and final examinations will be a combination of multiple choice, true-false, matching and short answers and a possible short case scenario.

**Grading Scale:**

| | |
|---|---|
| A | $\geq$ 90% |
| B | 80-89% |
| C | 70-79% |
| F | < 70% |

**Academic Honesty**:

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

**Cheating**

Dishonesty of any kind involving examinations, assignments, alteration of records, wrongful possession of examinations, and unpermitted submission of duplicate papers for multiple classes or unauthorized use of keys to examinations is considered cheating. Cheating includes but is not limited to:

- Using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class.
- Falsifying or inventing any information, including citations, on an assigned exercise.
- Helping or attempting to help another in an act of cheating or plagiarism.

**Plagiarism**

Plagiarism is presenting the words or ideas of another person as if they were your own. Materials, even ideas, borrowed from others necessitate full and complete acknowledgment of the original authors. Offering the work of another as one's own is plagiarism and is unacceptable in the academic community. A lack of adequate recognition constitutes plagiarism, whether it utilizes a few sentences, whole paragraphs, articles, books, audio-visual materials, or even the writing of a fellow student. In addition, the presentation of material gathered, assembled or formatted by others as one's own is also plagiarism. Because the university takes such misconduct very seriously, the student is urged to carefully read university policies on Misconduct in Research and Other Scholarly Activity 05.00. Some examples of plagiarism are:

- Submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another.
- Submitting a work that has been purchased or otherwise obtained from an Internet source or another source.
- Incorporating the words or ideas of an author into one's paper without giving the author due credit.

**Calendar of Topics, Readings, and Due Dates**

| **Unit 1: Organ System Effects** | | | | |
|---|---|---|---|---|
| ***Week #*** | ***Date*** | ***Class Topic*** | ***Readings*** | ***Assignments Due*** |
| Week 1 | 1/12-1/18 | Welcome Module | CANVAS | None |
| | | Reproductive and Developmental Disorders | Ladou 27-28<br>Levy 24 | 1/18 |
| Week 2 | 1/20-1/25 | Liver Disorders | Ladou 21<br>Levy 27 | 1/25 |
| | | Kidney Disorders | Ladou 22<br>Levy 28 | 1/25 |
| Week 3 | 1/26-2/1 | Occupational Pulmonary Disease | Ladou 18-19<br>Levy 22 | 2/1 |

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|---|---|---|---|---|
| | | ***1/26: Census Date*** | | |
| Week 4 | 2/2-2/8 | Cardiovascular Disorders | Ladou 20<br>Levy 26 | 2/8 |
| | | Hematological Disorders | Ladou 24 | 2/8 |
| | | ***2/4: Payment Deadline; drop for non-payment*** | | |
| Week 5 | 2/9-2/15 | Occupational Infections & blood-borne pathogens | Ladou 16<br>Levy 13 & 32 C | 2/15 |
| | | Occupational Cancer | Ladou 25<br>Levy 21 | 2/15 |
| Week 6 | 2/16-2/22 | Musculo-skeletal Disorders | Ladou 7-10<br>Levy 20 | 2/22 |
| Week 7 | 2/23-3/1 | Dermatological Disorders | Ladou 17<br>Levy 25 | 3/1 |
| | | Neurological Disorders | Ladou 23<br>Levy 23 | |
| Week 8 | 3/2-3/8<br>**Fri 3/6** | **Mid-Term Exam** | | |
| Week 9 | **3/9-3/15** | **Spring Break** | | |

| **Unit 2: Physical Hazards and Environmental Health** | | | | |
|---|---|---|---|---|
| ***Week #*** | ***Date*** | ***Class Topic*** | ***Readings*** | ***Assignments Due*** |
| Week 10 | 3/16-3/22 | Noise and Acoustics | Ladou 12<br>Levy 12 A | 3/22 |
| | | ***3/30: Last day to withdraw from course*** | | |
| Week 11 | 3/23-3/29 | Ionizing radiation And Radon | Ladou 13<br>Levy 12 D | 3/29 |
| Week 12 | 3/30-4/5 | Non-ionizing Radiation | Ladou 13<br>Levy 12 D | 4/5 |
| | | Vibration | Ladou 13<br>Levy 12 B | 4/5 |
| Week 13 | 4/6-4/12 | Thermal Injuries | Ladou 13<br>Levy 12 C | 4/12 |
| | | Hyperbaric/Hypobaric | Ladou 13<br>Levy 12 C | 4/12 |

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|---|---|---|---|---|
| Week 14 | 4/13-4/19<br>**Fri 4/17** | **Case Scenarios** | | 4/19 |
| Week 15 | 4/20-4/26 | Ag, construction and health care workers | Levy 32 | 4/26 |
| Week 16 | 4/27-5/3<br>**Fri 5/1** | **Final Exam** | | 5/1 |