

ENV H 550 A Sp 18: Occupational And Environmental Disease

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ENVIRONMENTAL & OCCUPATIONAL HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH · UNIVERSITY of WASHINGTON



ENVH 550: Occupational & Environmental Disease

3 or 4 credits, Graded

Quarter: Spring 2018

Time & Locations:

- Tues 8:30 am-10:20 am, Health Sciences Building (HSB) BB1602
- Thurs 8:30 am-9:20 am, HSB T474

Instructor:



June Spector, Associate Professor

Office: HSB 225C

Phone: (206) 897-1979

Email: spectj@uw.edu (<mailto:spectj@uw.edu>)

(<mailto:marilyn@uw.edu>) **Office Hours:** By appointment

Office Hours: by appointment

Course Website: <https://canvas.uw.edu/courses/1131318>

Course Description:

This course serves as an introduction to occupational and environmental diseases. Classes are organized around diseases using public health scenarios and clinical cases. To promote integration of concepts, lecture materials and other illustrative multimedia content are reviewed outside of class, and multi-disciplinary discussions involving both students and faculty occur during class time. This course is designed to ensure that, upon completion, students can

effectively apply evidence-based principles to their work.

Classroom Climate:

The UW School of Public Health seeks to ensure all students are fully included in each course and strives to create an affirming environment that reflects community and mutual caring. In this course, it is my intent that students from all backgrounds and perspectives are well-served, that students' learning needs are addressed both in and out of class, and that the diversity that students bring to this course is viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity encompassed by differences in: age, physical or mental ability, ethnicity, race, gender identity, sexual orientation, socioeconomic status, nationality, religion and culture. I encourage students with concerns about classroom climate to talk to me (your instructor), your advisor(s), member(s) of the departmental or SPH Diversity Committee, and/or your program director. Please let me know how I can improve the effectiveness of the course for you personally, or for other students or student groups. Your suggestions are encouraged and appreciated.

Course Logistics:

This course offers two different credit options: 1) a three-credit option, and 2) a *four-credit option*. The three-credit option focuses on occupational and environmental disease epidemiology, pathophysiology, basics of diagnostic testing, and aspects of workplace/population management relevant to disease prevention and management such as hazard evaluation, disease surveillance, policy development, and health protection programs. The course will meet many of the objectives of students in exposure sciences, occupational health services, construction management occupational safety and health, and toxicology with its focus on specific exposures, health outcomes, and disease management.

A four-credit option, intended for clinically-oriented students including but not limited to occupational and environmental health nursing students, medical fellows in occupational and environmental medicine and other medical subspecialties, residents in internal medicine, family medicine, emergency medicine, and rehabilitation medicine, and third and fourth year medical students, is also available. The four-credit option includes an additional clinical laboratory session each week that focuses in more detail on aspects of diagnostic testing and interpretation, differential diagnosis, and clinical management. This additional clinical laboratory allows for emphasis on attaining the level of knowledge required for successful completion of the Occupational Medicine board examination and the Certified Occupational Health Nursing examination.

The course is open to other students with permission of the instructor.

E-mail is the standard medium used for communication regarding this course, and readings and other resources will be distributed via the course web site. Students are responsible for ensuring that their correct email address is on file and for informing the instructor if unable to use electronic media.

Course Learning Objectives:*

At the end of this course, the student will be able to:

- Recognize and describe the epidemiology and pathophysiology of classic, common, and emerging occupational and environmental diseases (PC1)
- Identify potential relationships between exposures and symptoms in workers, working populations, and communities (PC1, MK2)
- Select appropriate initial diagnostic tests to evaluate symptoms in potentially exposed individuals (PC1)
- Work in multi-disciplinary teams to manage and prevent occupational and environmental diseases at the population level using such approaches as hazard evaluation, disease surveillance, policy development, and health protection programs (PC8, PC6)
- Evaluate regulatory occupational exposure limits with respect to disease prevention (PC9)
- Recommend appropriate medical surveillance activities, integrating information about regulatory requirements (PC12)
- Critically review the scientific literature to address specific occupational and environmental disease questions, and determine the validity of the work (MK4)

Additional learning objectives for clinically-oriented (four-credit course option) students are:

- *Formulate a differential diagnosis for patients with symptoms potentially related to occupational and environmental exposures (PC8)*
- *Select and interpret appropriate diagnostic tests (including imaging studies, audiograms, nerve conduction/electromyography studies, pulmonary function tests, and allergy tests) and workplace/environmental evaluations that can best distinguish between specific occupational illnesses, and evaluations that can help distinguish conditions caused by occupational and environmental exposures from other conditions (PC1)*
- *Manage workers with occupational and environmental diseases, including by selecting appropriate treatments and referrals, while incorporating best practices from medical guidelines (PC1, PC6, PC8)*

* Objectives are mapped to relevant Accreditation Council for Graduate Medical Education (ACGME) milestones and levels (<https://www.acgme.org/acgmeweb/Portals/0/PDFs/Milestones/PreventiveMedicineMilestones-OccupationalMedicine.pdf> [_https://www.acgme.org/acgmeweb/Portals/0/PDFs/Milestones/PreventiveMedicineMilestones-OccupationalMedicine.pdf](https://www.acgme.org/acgmeweb/Portals/0/PDFs/Milestones/PreventiveMedicineMilestones-OccupationalMedicine.pdf)), shown in parentheses after each objective and described below. Milestones are knowledge, skills, attitudes, and other attributes of ACGME competencies and are designed to be organized in a development framework from less to more advanced (Levels 1 to 5). Level 4 is designed as the graduation target (not requirement) for completion of the graduate medical education program.

- *Patient Care (PC)1, Level 3: Recognizes, evaluates, and treats (or refers) patients whose health may be affected by acute or chronic exposure to occupational or environmental chemical agents, including interpretation of laboratory and/or environmental monitoring test results*
- *PC6, Level 3: Applies primary, secondary, and tertiary preventive approaches to disease prevention*
- *PC8, Level 3: Works with a team to evaluate and identify workplace or environmental causes of injury or illness and recommends controls or programs to reduce exposure....; formulates an appropriate differential diagnosis and assessment; provides appropriate treatment and plan....; applies evidence-based clinical practice guidelines in treatment and management*
- *PC9, Level 2: Lists the criteria/regulatory levels for exposures to the specific substance or hazard*
- *PC12, Level 2: Performs a medical surveillance examination following prescribed guidelines*
- *Medical Knowledge (MK)2, Level 2: Identifies common illnesses that may be caused or influenced by environmental exposures & identifies broad environmental factors that may impact the health of a community*

- *MK4, Level 4: Critically reviews and interprets epidemiologic literature for commonly used study designs, identifying purpose, population, design, and biases*

Course Format:

The course consists of nine units, with each unit focusing on a different occupational/environmental disease. Diseases will be introduced using public health scenarios and clinical cases. The course will be delivered using a “flipped-classroom” approach, in which lecture and other materials will be reviewed outside of class, and interactive, multidisciplinary activities will be conducted during class time. There will often be several student-led discussions per week (see details below).

In general, each disease-unit will be covered over the course of one week. The general scheme includes:

1) Basic descriptive epidemiology and evidence of exposure/disease association:

- Student preparation (*outside of class*):
 - Review workplace scenario and illustrative YouTube video clips, other media sources, and/or readings
 - View pre-recorded video mini-lecture (background, basic descriptive epidemiology of disease)
 - Read journal article or report addressing exposure/disease relationship (if applicable)
- In-class:
 - Review of scenario
 - Q&A/discussion of descriptive epidemiology using student response approach
 - Brief review of journal article/report addressing exposure/disease relationship (student-led, if applicable)

2) Basic pathophysiology and diagnostic considerations (individual patient-level):

- Student preparation (*outside of class*):
 - Review clinical case and illustrative YouTube video clips, other media sources, and/or readings covering clinical disease presentation and/or diagnostic considerations
 - View pre-recorded video mini-lecture (basic pathophysiology)
- In-class:
 - Review of case
 - Discussion of classic diagnostic tests and disease findings using actual examples (clinical student-led)

3) Selected aspects of management (workplace/population-level):

- Student preparation:
 - Review/read resources, including occupational safety and health standards, if applicable, covering disease prevention and management at the workplace/population level
- In-class:
 - Interactive discussion of population-level disease management/prevention topic (e.g. hazard evaluation, disease surveillance, policy development, health protection programs) (student-led)

For clinical students/students enrolled in the four-credit course option, there will be an additional clinical laboratory each week focusing on diagnosis and clinical management:

4) Clinical Laboratory – differential diagnosis, clinical management

- *Student preparation:*
 - *Review/read resources covering differential diagnosis and management*
 - *View pre-recorded instructor mini-lecture and guest expert lecture (diagnosis and management)*
- *Complete quiz*

Course Requirements:

High-yield readings and review of multimedia resources combined with instructor- and student-led discussions and activities in class, and clinically-oriented quizzes (4-credit/clinically-oriented students only), will test students' ability to demonstrate application of knowledge.

Evaluation methods

Student-led discussions: Groups of 1-2 students will be formed. Each group will:

#1) *non-clinically-oriented students:* lead an approximately 20-30 minute discussion of an illustrative journal article corresponding to the weekly occupational/environmental disease. The discussion should emphasize a critical review of the article and focus on any evidence of an exposure-disease association and, if relevant, dose-response relationship

or

lead an approximately 30 minute discussion of the workplace/population management topic corresponding to the weekly occupational/environmental disease. Discussions should be interactive and participatory, evidence-based, and build on the scenario for each disease. Students are required to communicate with the instructor at least one week prior to the presentation for feedback on the plan for the discussion.

#2) *clinically-oriented students:* lead one approximately 30 minute discussions of the clinical evaluation topic corresponding to the weekly occupational/environmental disease. Discussions should be interactive and participatory, evidence-based, and build on the case for each disease. Students are required to communicate with the instructor at least one week prior to the presentation for feedback on the plan for the discussion.

Final presentation: Multidisciplinary groups of 4-6 students will be formed. Each group will choose an emerging and/or global occupational or environmental disease of interest. Groups will present an approximately 15-25 minute overview of the chosen disease covering information about what is known about the exposure, disease/case epidemiology, diagnosis/case definition, population management, and clinical management (if relevant). Non-clinically-oriented students will present on clinical subtopics with guidance from clinically-oriented group members, and clinically-oriented students will present on non-clinical (e.g. exposure) subtopics with guidance from non-clinically-oriented students.

Weekly reflection: Once a week, students will be asked to write for instructor review a brief written reflection on one aspect of the weekly disease that were most notable to them, and why, and indicate what aspects of the course (online mini-lectures, pre-class preparatory written materials or videos, in-class question and answer sessions or discussions with peers/instructor, journal article reviews, independent learning stimulated by class discussion/materials, etc.) drew these aspects to their attention. These assignments will be graded.

Clinical lab quizzes (4-credit/clinically-oriented students only): There will be approximately weekly quizzes focused on diagnosis/management/clinical lab content. The quiz format will be multiple-choice and/or short answer.

Readings and Other Preparatory Materials:

All readings, videos, and other materials will be posted on the class website. All students are expected to be able to access class materials via the course website. If this presents a problem, students are expected to let the instructor know immediately.

Please be advised that to use the electronic material on the course website, you must agree to the following statement:

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials. Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be used for any purpose other than private study, scholarship, or research. If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of fair use that user may be liable for copyright infringement.

Course Textbook: Rosenstock, L. Textbook of Clinical Occupational and Environmental Medicine, 2nd edition (2005).

[_\(<http://www.washington.edu/teaching/teaching-resources/flipping-the-classroom/>\)](http://www.washington.edu/teaching/teaching-resources/flipping-the-classroom/)

Student Evaluation:

Course grades will be determined on the basis of:

	Three-credit option	<i>Four-credit option (clinically-oriented students)</i>
Individual products (90%)		
Student-led discussion	35%	30%
Final presentation	55%	45%
Final examination	--	15%
Other (10%)		
Weekly reflection	10%	10%

Assignment of numeric grades will use UW Department of Health Services grading guidelines for graduate students. More details are available at the course website. <http://depts.washington.edu/hserv/grading> ://

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3.9-4.0 Excellent and exceptional work ...for a graduate student

3.7-3.8 Strong work

3.4-3.6 Competent and sound work (*default category*)

3.2-3.3 Adequate work, although some weaknesses are evident

2.9-3.1 Borderline work

2.7-2.8 Deficient but acceptable work

<2.7 Unacceptable work

Access and Accommodations:

Your experience in this class is important to us, and it is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you experience barriers based on a disability or temporary health condition, please seek a meeting with Disability Resources for Students (DRS) to discuss and address them. If you have already established accommodations with DRS, please communicate your approved accommodations to your instructor at your earliest convenience so we can discuss your needs in this course.

DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (this can include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206-543-8924 or uwdrs@uw.edu (<mailto:uwdrs@uw.edu>) or [disability.uw.edu](http://depts.washington.edu/uwdrs/) (<http://depts.washington.edu/uwdrs/>)

Academic Integrity:

Students at the University of Washington (UW) are expected to maintain the highest standards of academic conduct, professional honesty, and personal integrity. The UW School of Public Health (SPH) is committed to upholding standards of academic integrity consistent with the academic and professional communities of which it is a part. Plagiarism, cheating, and other misconduct are serious violations of the University of Washington Student Conduct Code (WAC 478-120). We expect you to know and follow the university's policies on cheating and plagiarism, and the [SPH Academic Integrity Policy](http://sph.washington.edu/students/academicintegrity/) (<http://sph.washington.edu/students/academicintegrity/>). Any suspected cases of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington Community Standards and Student Conduct website.

Course Summary:

Date	Details
Tue Mar 27, 2018	 To do before 3/27 class (https://canvas.uw.edu/courses/1131318/assignments/4127688) due by 8:29am
	 Course intro (https://canvas.uw.edu/calendar?event_id=1119701&include_contexts=course_1131318) 8:30am to 9:20am
	 Asbestosis epi (https://canvas.uw.edu/calendar?event_id=1119712&include_contexts=course_1131318) 9:30am to 10:20am
Thu Mar 29, 2018	 To do before 3/29 class (https://canvas.uw.edu/courses/1131318/assignments/4127689) due by 8:29am
	 Asbestosis pathophys & diag (https://canvas.uw.edu/calendar?event_id=1119731&include_contexts=course_1131318) 8:30am to 9:20am
	 Pneumoconiosis radiology w/ Dr. David Godwin (https://canvas.uw.edu/calendar?event_id=1119713&include_contexts=course_1131318) 9:30am to 10:20am
Fri Mar 30, 2018	 Asbestosis differential diagnosis and management (required for 4-credit/clinically-oriented students) (https://canvas.uw.edu/courses/1131318/assignments/4147303) due by 5pm
Tue Apr 3, 2018	 To do before 4/3 class (https://canvas.uw.edu/courses/1131318/assignments/4127696) due by 8:29am
	 Derm epi (https://canvas.uw.edu/calendar?event_id=1126016&include_contexts=course_1131318) 8:30am to 9:20am
	 Derm pathophys & diag (https://canvas.uw.edu/calendar?event_id=1119729&include_contexts=course_1131318) 9:30am to 10:30am
Thu Apr 5, 2018	 To do before 4/5 class (https://canvas.uw.edu/courses/1131318/assignments/4127697) due by 8:29am
	 Derm 4/3 class f/u & final presentation prep (https://canvas.uw.edu/calendar?event_id=1132969&include_contexts=course_1131318) 8:30am to 9:20am
	 Derm diag & clinical cases w/ Dr. Marshall Welch (https://canvas.uw.edu/calendar?event_id=1119728&include_contexts=course_1131318) 9:30am to 10:20am
Fri Apr 6, 2018	 ACD differential diagnosis and management (required for 4-credit/clinically-oriented students) (https://canvas.uw.edu/courses/1131318/assignments/4151861) due by 5pm
	 To do before 4/10 class (https://canvas.uw.edu/courses/1131318/assignments/4127690) due by 8:29am

Tue Apr 10, 2018	 Back MSD epi, diagnosis (https://canvas.uw.edu/calendar?event_id=1119710&include_contexts=course_1131318)	8:30am to 9:20am
	 Back MSD diag, pop manage (https://canvas.uw.edu/calendar?event_id=1119727&include_contexts=course_1131318)	9:30am to 10:20am
	 To do before 4/12 class (https://canvas.uw.edu/courses/1131318/assignments/4127691)	due by 8:29am
Thu Apr 12, 2018	 Back MSD guidelines & coverage policies (https://canvas.uw.edu/calendar?event_id=1119711&include_contexts=course_1131318)	8:30am to 9:20am
	 Back MSD imaging w/ Dr. Chris Standaert (https://canvas.uw.edu/calendar?event_id=1119726&include_contexts=course_1131318)	9:30am to 10:20am
Fri Apr 13, 2018	 Low back MSD differential diagnosis and management (required for 4-credit/clinically-oriented students) (https://canvas.uw.edu/courses/1131318/assignments/4156854)	due by 5pm
	 To do before 4/17 class (https://canvas.uw.edu/courses/1131318/assignments/4127692)	due by 8:29am
Tue Apr 17, 2018	 CTS epi (https://canvas.uw.edu/calendar?event_id=1119703&include_contexts=course_1131318)	8:30am to 9:20am
	 CTS diag (https://canvas.uw.edu/calendar?event_id=1119704&include_contexts=course_1131318)	9:30am to 10:20am
	 To do before 4/19 class (https://canvas.uw.edu/courses/1131318/assignments/4127693)	due by 8:29am
Thu Apr 19, 2018	 CTS manage (https://canvas.uw.edu/calendar?event_id=1119705&include_contexts=course_1131318)	8:30am to 9:20am
	 To do before 4/24 class (https://canvas.uw.edu/courses/1131318/assignments/4127694)	due by 8:29am
Tue Apr 24, 2018	 Lead epi (https://canvas.uw.edu/calendar?event_id=1119725&include_contexts=course_1131318)	8:30am to 9:20am
	 Lead diag (https://canvas.uw.edu/calendar?event_id=1119724&include_contexts=course_1131318)	9:30am to 10:20am
	 To do before 4/26 class (https://canvas.uw.edu/courses/1131318/assignments/4127695)	due by 8:29am
Thu Apr 26, 2018	 (Lead) toxic/compressive neuropathy cases w/ Dr. Eric Kraus (https://canvas.uw.edu/calendar?event_id=1119714&include_contexts=course_1131318)	8:30am to 10:20am
Fri Apr 27, 2018	 Lead neuropathy differential diagnosis and management (required for 4-credit/clinically-oriented students) (https://canvas.uw.edu/courses/1131318/assignments/4162302)	due by 5pm

Tue May 1, 2018	 To do before 5/1 class (https://canvas.uw.edu/courses/1131318/assignments/4127703)	due by 8:29am
	 NIHL online module beta test (https://canvas.uw.edu/calendar?event_id=1119722&include_contexts=course_1131318)	8:30am to 10:20am
Thu May 3, 2018	 To do before 5/3 class (https://canvas.uw.edu/courses/1131318/assignments/4127704)	due by 8:29am
	 NIHL pathophys, diag, population management (https://canvas.uw.edu/calendar?event_id=1119716&include_contexts=course_1131318)	8:30am to 9:20am
	 NIHL clinical cases w/ Mary McDaniel, AuD (https://canvas.uw.edu/calendar?event_id=1119720&include_contexts=course_1131318)	9:30am to 10:20am
Fri May 4, 2018	 NIHL differential diagnosis and management (required for 4-credit/clinically-oriented students) (https://canvas.uw.edu/courses/1131318/assignments/4164276)	due by 5pm
Tue May 8, 2018	 To do before 5/8 class (https://canvas.uw.edu/courses/1131318/assignments/4127705)	due by 8:29am
	 Silicosis epi (https://canvas.uw.edu/calendar?event_id=1119719&include_contexts=course_1131318)	8:30am to 9:20am
	 Silicosis diag (https://canvas.uw.edu/calendar?event_id=1119715&include_contexts=course_1131318)	9:30am to 10:20am
Thu May 10, 2018	 To do before 5/10 class (https://canvas.uw.edu/courses/1131318/assignments/4127698)	due by 8:29am
	 Silicosis manage/rule-making (https://canvas.uw.edu/calendar?event_id=1119718&include_contexts=course_1131318)	8:30am to 9:20am
	 Silicosis/ILD w/ Dr. Richard Kim (https://canvas.uw.edu/calendar?event_id=1119717&include_contexts=course_1131318)	9:30am to 10:20am
Fri May 11, 2018	 Silicosis differential diagnosis and management (required for 4-credit/clinically-oriented students) (https://canvas.uw.edu/courses/1131318/assignments/4164215)	due by 5pm
Tue May 15, 2018	 To do before 5/15 class (https://canvas.uw.edu/courses/1131318/assignments/4127699)	due by 8:29am
	 CSE epi, pathophys (https://canvas.uw.edu/calendar?event_id=1119702&include_contexts=course_1131318)	8:30am to 10:20am
Thu May 17, 2018	 To do before 5/17 class (https://canvas.uw.edu/courses/1131318/assignments/4127700)	due by 8:29am
	 CSE diag, manage (https://canvas.uw.edu/calendar?event_id=1126028&include_contexts=course_1131318)	8:30am to 9:20am
	 CSE neuropsych testing w/ Dr. Vaishali Phatak (https://canvas.uw.edu/calendar?)	9:30am to 10:20am

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Fri May 18, 2018

 [CSE differential diagnosis and management \(required for 4-credit/clinically-oriented students\)](#) (<https://canvas.uw.edu/courses/1131318/assignments/4164678>) due by 5pm

Tue May 22, 2018

 [To do before 5/22 class](#) (<https://canvas.uw.edu/courses/1131318/assignments/4127701>) due by 8:29am

 [Asthma epi](#) (https://canvas.uw.edu/calendar?event_id=1119706&include_contexts=course_1131318) 8:30am to 9:20am

 [Asthma surveillance](#) (https://canvas.uw.edu/calendar?event_id=1119707&include_contexts=course_1131318) 9:30am to 10:20am

Thu May 24, 2018

 [To do before 5/24 class](#) (<https://canvas.uw.edu/courses/1131318/assignments/4127702>) due by 8:29am

 [Asthma diag](#) (https://canvas.uw.edu/calendar?event_id=1119708&include_contexts=course_1131318) 8:30am to 9:20am

 [Asthma clinical lab w/ Dr. Sverre Vedal](#) (https://canvas.uw.edu/calendar?event_id=1119709&include_contexts=course_1131318) 9:30am to 10:20am

Fri May 25, 2018

 [Occupational asthma differential diagnosis and management \(required for 4-credit/clinically-oriented students\)](#) (<https://canvas.uw.edu/courses/1131318/assignments/4164825>) due by 5pm

Tue May 29, 2018

 [Wrap-up and presentations!](#) (https://canvas.uw.edu/calendar?event_id=1119732&include_contexts=course_1131318) 8:30am to 10:20am