

# Course Syllabus

[Jump to Today](#)

 [Edit](#)

## ENV H 439 and 539: One Health: Human and Animal Health in a Changing Environment

Spring Quarter 2019

Day/time: MW 8:30-9:50

South Campus Center 301

### INSTRUCTOR:

#### **Peter M. Rabinowitz MD MPH**

Professor; Environmental and Occupational Health Sciences, Global Health, Family Medicine, Epidemiology (adjunct), Allergy and Infectious Diseases (adjunct)

Pronouns He, Him, His

Email: [peterr7@uw.edu](mailto:peterr7@uw.edu) (<mailto:peterr7@uw.edu>)

<mailto:peterr7@uw.edu> Office Hours: By appointment. Contact Vickie Ramirez ([ramirezv@uw.edu](mailto:ramirezv@uw.edu) <mailto:kconery@uw.edu>) to schedule appointments.

### Teaching Assistant:

**Kathleen Conery, BSc** (<mailto:kconery@uw.edu>)

<mailto:kconery@uw.edu> Pronouns She, Her, Hers

Email: [kconery@uw.edu](mailto:kconery@uw.edu) (<mailto:kconery@uw.edu>)

TA Office Hours: Mondays, 10:00-11:00 AM (or TBD), at tables outside of the computer classrooms on the 3rd floor of the Health Sciences library

### GUEST SPEAKERS:

- **Marguerite Pappaioanou DVM, MPVM, PhD (principal guest speaker)**, Affiliate Professor, DEOHS
- **Darin Collins**, DVM, Director, Animal Health Programs, Seattle Woodland Park Zoo
- **Nicole Errett**, PhD, Lecturer, DEOHS, SPH, UW
- **Jennifer Gardner**, MD, Assistant Professor, Division of Dermatology, UW School of Medicine
- **Gemina Garland-Lewis**, MS in Conservation Medicine, Research Coordinator, Center for One Health Research, UW
- **Robert M. Liddell**, MD, Medical Director & Musculoskeletal/Body Radiologist, Center for Diagnostic Imaging, Inc.
- **Sally Thomson-Iritani**, DVM, PhD, CPIA, UW Department of Comparative Medicine
- **Lisa Dabek**, PhD, Program Director and Senior Conservation Scientist, Woodland Park Zoo
- **Mary Margaret Callahan**, Senior National Director of Program Development at Pet Partners, where she oversees the Therapy Animal Program which registers nine different species
- **Julie Komarow**, Pet Partners

**COURSE DESCRIPTION:** One Health is a field that employs a multi-disciplinary approach to address the inextricable links between human health, animal health, and ecosystem health in order to achieve optimal health for all. One Health incorporates multiple perspectives to assess the underlying causes of complex "wicked" health challenges in order to develop effective "win-win" solutions. Using a case-based approach, the course will follow the ECOHAB acronym for human-animal-ecosystem health connections: (EXPOSURES to zoonotic infectious diseases and other biological, chemical, and physical hazards, COMPARATIVE clinical similarities between humans and animals, OCCUPATIONAL aspects of working with animals, the HUMAN-ANIMAL-NATURE BOND, AGRICULTURE and food systems, and BIODIVERSITY). Concepts and approaches presented during classroom sessions will be reinforced through field self-study assignments at the Woodland Park Zoo and the University of Washington Farm.

### **LEARNING OBJECTIVES (Joint 439 and 539)**

*Upon completion of this course, students will be able to:*

1. Explain from an ecological perspective at least five types of connections between human, animal, and ecosystem health, following the acronym ECOHAB (Exposures, Comparative, Occupational, Human Animal-Nature Bond, Agriculture/food, Biodiversity).
2. Be able to explain these connections at different levels of system complexity ranging from a micro level to a macro (Planetary) level, and create concept maps of these system interactions using digital concept mapping tools.
3. Exposure connections:
  1. Identify at least three zoonotic diseases and explain the human, animal, and environmental aspects of their disease impact, prevention and control.
  2. Identify at least 3 reasons why animals can be sentinels for human environmental health hazards.
4. For Comparative connections:
  1. Be able to compare the natural history of a chronic disease in at least three species
  2. Explain the value of a species-spanning approach as opposed to only focusing on human health. .
5. For Occupational connections:
  1. Describe the major types of animal work globally.
  2. Describe at least 3 unique aspects of work involving animals.
6. Human-Animal-Nature Bond:
  1. Identify 4 health effects associated with the human-animal-nature bond.
  2. Describe how this bond can be leveraged when addressing disease or other health conditions in clinical or public health settings.
7. Agriculture/Food systems
  1. Describe key aspects of global food production systems from a One Health / Planetary Health perspective.
  2. Be able to propose a One Health approach to a problem faced in urban farming.
8. Biodiversity:
  1. Describe the importance of biodiversity to global and planetary health, including the role of pollinators and disease dynamics.

2. Describe the relationship between ecosystem biodiversity and the human microbiome. how the One Health approach can promote biodiversity
9. Work in "interprofessional" teams by acting as a "specialist" in either human, animal, or environmental health and identify the health issues relevant to that specialty but also how to work with other specialists in an interprofessional model using skills such as systems thinking, conflict resolution, inter-professional communication, and ethics, .
10. For at least 3 different One Health scenarios, outline the relative roles of human health, animal health , and environmental health professionals/officials.
11. Define a a"wicked" health problem and describe at least three benefits of using a One Health approach (as opposed to conventional single sector approaches) to address today's "wicked" health challenges.
12. Describe at least three barriers to employing a One Health approach to address today's "wicked" health challenges, and options for overcoming these barriers.

### GRADUATE LEVEL LEARNING OBJECTIVES (539 only)

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

1. Lead and facilitate a small group problem-solving team in order to address different types of health issues using a One-Health approach. This will involve understanding and integrating human, animal, and environmental health perspectives.
2. Lead a One Health team in creating a brief group summary of a case study/problem solving session. The summary will describe the human, animal, and environmental health aspects of the problem, and include specific and practical recommendations for an integrated One-Health strategy to address the problem.

### TEXTS and REFERENCES

There is no required textbook. **The primary recommended text for this course will be: *Human-Animal Medicine: Clinical Approaches to Zoonoses, Toxicants and Other Shared Health Risks* by Peter M. Rabinowitz and Lisa A. Conti. Saunders: Elsevier Press, New York.** This text book will be on reserve at the Health Sciences Library and at the COHR suite. It is available for purchase online. An electronic version will also be available through the Health Sciences Library.

Additional reading assignments and course materials, such as videos, websites, pdfs of lecture presentations, will be posted as assignments on the Canvas site. Students are responsible to complete assigned readings before class time.

In addition, the following books, reports, and journals are additional recommended references for the material presented in this course. The books are available for reading in the Center for One Health (COHR) lab office (there is no option for checking them out—all reading must be done in the COHR lab. The Reports listed below can be readily accessed for free online.

### Books

- *One Health: People, Animals, and the Environment*. 2014. Ron Atlas and Stanley Maloy, Eds. ASM Press
- *Confronting Emerging Zoonoses: The One Health Paradigm*. 2014. Yamada, A., et al. (Eds) Springer, New York, NY

- *Zoobiquity: The Astonishing Connection Between Human and Animal Health*. 2013. Barbara Natterson-Horowitz, B, Bowers K. Vintage Press.
- *One Health: The Human-Animal-Environment Interfaces in Emerging Infectious Diseases*. 2013. Mackenzie, J.S., et al (Eds.) Springer, New York, NY
- *Spillover: Animal Infections and the Next Pandemic*. 2012. David Quammen. WW Norton and Company. New York.
- *One Health: Science, Politics, and Zoonotic Disease in Africa*. 2016. Bardosh K (ed.). Routledge: New York.

### Reports (available for free online)

- WHO/FAO/OIE: A Tripartite Guide to Addressing Zoonoses in Countries 2019. Available at : <https://extranet.who.int/sph/sites/default/files/document-library/document/Tripartite-Guidance-EN-web%20single%20page.pdf> (<https://extranet.who.int/sph/sites/default/files/document-library/document/Tripartite-Guidance-EN-web%20single%20page.pdf>)
- National Research Council (US) Committee on Achieving Sustainable Global Capacity for Surveillance and Response to Emerging Diseases of Zoonotic Origin; Editors: Gerald T. Keusch, Marguerite Pappaioanou, Mila C. Gonzalez, et al. 2009. National Academies Press (US): Washington DC. (Available online at NAS, can be downloaded)
- Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health. *The Lancet*, Vol. 386, No. 10007 (Available online)

### Recommended Journals (available online through UW libraries)

- One Health Journal
- International Journal of One Health
- Emerging Infectious Diseases
- Lancet
- Lancet Planetary Health
- Environmental Health Perspectives
- EcoHealth
- PLoS One

**CLASS PARTICIPATION:** Class sessions will include lectures and group problem-solving sessions focused around case-studies focused on illustrative One Health challenges. Successful participation in this course will require completion of required readings ahead of class, class participation that includes sharing experiences, asking and or answering questions in class, actively working and interacting with team members in problem-solving sessions, and taking exams in class.

Although attendance in lectures is not expressly required, students are encouraged and expected to participate in classroom discussions during lecture sessions and group problem solving sessions, having fully prepared for class by completing assigned readings before lectures and problem-solving case studies. Even on lecture days there are some group discussion components that benefit from maximum student participation. Students will not have the opportunity to earn class participation credit for course periods during which they are absent.

**Policy on Use of Computers and smart phones in course:** This course will use interactive technology, and allow the use of computers and smart phones during the case discussions. Computers will also be allowed for note-taking during lectures, and smart phones may be used for interactive learning using the classroom App.

The classroom App will be explained on the first day of class, and students will be able to access the app on their personal phones or laptops.

Lucid chart software provides a resource for concept mapping that will be helpful for the Case study and self study Field visit reports. This software is available free of charge through UW student Google drive, and this will be explained on the first day of class.

Students are expected not to abuse these privileges by using technology for personal activities such as email and social media during class sessions. Failure to abide by these guidelines will affect the participation grade for a particular student and make the instructor reconsider this policy in the future. All students are expected to come to class having read the assigned readings and prepared to actively contribute to the discussion of the case-studies.

### **CLASSROOM CLIMATE, DIVERSITY, INCLUSION, AND RESPECT**

Diverse backgrounds, embodiments, and experiences are essential to the critical thinking endeavor at the heart of university education, including at the heart of One Health. Therefore, we expect you to follow the UW Student Conduct Code in your interactions with your colleagues and me in this course by respecting the many social and cultural differences among us, which may include, but are not limited to: age, cultural background, disability, ethnicity, family status, gender identity and presentation, citizenship and immigration status, national origin, race, religious and political beliefs, sex, sexual orientation, socioeconomic status, and veteran status.

We acknowledge from the beginning that all of us, including your instructor, TA and guest lecturers, have a lot to learn about combatting racism, sexism, classism, and other forms of discrimination and bias, and that this learning process will continue throughout our careers. We are committed to supporting and ensuring a respectful, open, positive, inclusive classroom climate. Please reach out to talk with the instructor immediately if you experience disrespect in this class, and I will work to promptly address it in a constructive, educational manner, while assuring privacy. Please note that DCinfo@uw.edu is a resource for students with classroom climate concerns. UW students can also report incidents of bias or violations of UW policies for non-discrimination using the Bias Reporting Tool available at: <http://www.washington.edu/bias/> (<http://www.washington.edu/bias/>). Another option for communicating concerns would be to contact the Graduate Program Coordinator (Dr.Scott Meschke, [jmeschke@uw.edu](mailto:jmeschke@uw.edu) (<mailto:jmeschke@uw.edu>)) or Trina Sterry, the Graduate Program Advisor ([tsterry@uw.edu](mailto:tsterry@uw.edu) (<mailto:tsterry@uw.edu>)).

**COURSE FORMAT:** The course is divided into the following 6 modules: 1) Introduction to One Health Systems (micro to planetary); 2) Exposure Connections between systems; 3) Comparative health connections between systems 4) Human-Animal-Nature Bond Connections; 5) Agriculture/Food connections, and 6) Biodiversity connections.

Following the introductory module, all but one "Connection" modules will include the three components described below. The Agriculture/Food Connection module will include the overview lecture and field self-study component.

**1. Lectures:** Each connection module will begin with a lecture session that provides an overview of the topic and adds information and perspective to that provided by the required readings. The sessions will include in-class group discussion focused on thought-provoking questions that reinforce the material presented in readings and lecture.

**2. Group /team problem-solving sessions:** A central feature of the course will be four One Health group/team Case Study problem-solving sessions, for the following Connection modules: Exposure Connections, Human-Animal-Nature Bond Connections, Comparative Medicine Connections, and Biodiversity Connections.

These sessions will follow the lecture sessions for each Connection module and will emphasize One Health connections highlighted by a specific module and will reinforce systems thinking from "Micro" to "Macro" One Health perspectives, actively drawing on and incorporating human, animal, and environmental health perspectives to address the "wicked" health challenge posed by the case study most effectively. Students are highly encouraged to use the Lucid chart software (available on Student Google Drive) to make a concept map as part of their problem solving discussion.

The class will be divided into One Health teams comprised of at least three undergraduate (439) students and one graduate (539) student. The undergraduate student team members will take turns being a "specialist" in either human, animal, or environmental health. The graduate student will lead the team in integrating the different specialty perspectives at both a micro and a macro level and preparing a group summary report.

**3. Field Self Study Assignments at the [Seattle Woodland Park Zoo](https://www.zoo.org/) and the [University of Washington Farm](https://botanicgardens.uw.edu/center-for-urban-horticulture/gardens/uw-farm/) that reinforce One Health principles and practices in One Health settings:** In this third component of the modules, students will visit the Seattle Woodland Park Zoo (4 visits) and the University of Washington Farm (1 visit) and complete an individual self-study assignment related to the module. Due to hours of the Woodland Park Zoo, the self-study visits will need to be conducted outside of class hours. Free admission has been arranged for visits to the Zoo. Students will be expected to arrange their own transportation for these self-study visits. The Zoo is easily reachable by metro bus. The UW Farm is walking distance from the main campus.

Prior to each self study visit, there will an in-class session to prepare students for the assignment.

Each student will write a brief, 2-4 page self-study written report (double spaced, 12 font, 1 inch margins) that will be due approximately one week following the classroom prep session. Reports will summarize information obtained from on-line, pre-visit literature reviews, and data obtained from observations and information collected during the field visit. Students are expected to work independently. Students are highly encouraged to use the Lucid chart software (available on Student Google Drive) to make a concept map as part of their report. Students are encouraged to supplement the report with photos, videos, or other innovative supplementary material.

As an extra credit opportunity, students may elect to develop a poster from one or more of their One Health study visits at the zoo. Posters will address the problem/challenge studied, background, findings, conclusions, and recommendations. Students will present and discuss their posters at a special UW-Woodland Park Zoo collaboration poster session hosted by the Zoo at a date to be determined (late Spring 2019). In addition to

receiving extra credit for the class, Zoo officials will review the posters and select their favorite posters. (see additional information below).

**CLASS SCHEDULE:** See [the Modules Page](#) for a session-by-session schedule of lectures and assignments.

**GRADING OPPORTUNITIES:** This course is offered on a standard graded basis. The instructor will provide evaluation-grading rubrics (based on the course learning objectives) in advance for all major assignments.

**The overall grade in the course is comprised of the following components:**

1. Class participation -- 15%
2. Group/team problem solving case-study write-ups (4) -- 20%
3. Zoo and farm field visit write-ups (4) -- 20%
4. Midterm exam -- 15%
5. Final -- 30%

**In-Class Group Discussion Participation Expectations:**

**Excellent (4.0):** full and consistent preparation and completion of readings ahead of class, class attendance and active participation in class discussions

**Adequate (3.0):** full and consistent preparation and completion of readings ahead of class; regular class attendance and frequent participation in discussions

**Borderline (2.5):** irregular preparation and completion of readings ahead of class, inconsistent class attendance, less active participation in discussions

**Unacceptable:** minimal to no preparation and failure to complete readings ahead of class, minimal class attendance, minimal to no participation in team discussions

**Team problem-solving case-study session write-ups (20%):**

Students will be assigned group grades for the team summary write-ups that are prepared and submitted in class, according to a grading rubric prepared for each case-study. One grade will be given to the entire group/team for its case summary. See below for further detail.

**Expectations for Group Problem-Solving Case Studies:**

1. By the evening prior to each One Health case study problem solving session, the undergraduate (439) team members will be required to upload into canvas a written summary of their fact finding regarding their "specialty" ( animal, human, or environmental) aspects of the case to which they are assigned.
2. During the class, the graduate (539) student team leader will lead the group/team in a discussion of the One Health challenge posed by the case-study, and work with the team to identify integrated One Health solutions for the case problem(s).
3. The graduate student team leader will also lead the team in preparing, during the class session, a written summary of the problem and the One Health solutions based on the group discussion, and will be responsible to submit the team/group report by the end of the class session.

4. The undergraduate individual reports and the team report will be graded according to rubrics tailored to each problem-solving case study that will be posted on Canvas. Students are highly encouraged to use the Lucid chart software (available on Student Google Drive) to make a concept map as part of their report.
5. Halfway through the course, students in each group will upload to Canvas responses to a brief survey that will include items about the level of participation by their fellow team members; the graduate students will provide constructive input on the quality of participation of each undergraduate student, and each undergraduate student will provide constructive feedback on the quality of facilitation/leadership by the graduate students. This feedback will be required, but will not be graded, although the final grade for participation may consider the feedback provided.

**Seattle Woodland Park Zoo and University of Washington Farm field visit summary reports (20% in total; each of five write-ups 4% each):** As noted above, each student will write a brief report ( 2-4 pages double spaced, 12 font, 1 inch margins) on each of five field visit self-studies. Reports will summarize information obtained from on-line, pre-visit literature reviews, and data obtained from observations and information collected during their Zoo visit. Students are highly encouraged to use the Lucid chart software (available on Student Google Drive) to make a concept map as part of their report. Students are encouraged to supplement the report with photos, videos, or other innovative supplementary material. Reports are due on dates given on the class schedule.

**Midterm Quiz (15%):** The midterm quiz will be administered in class. Questions may include short answer/essay, true/false, and multiple choice.

**Final Exam (30%):** The final exam will administered during finals week at the designated time and place. Questions may include short answer/essay, true/false, and multiple choice.

### **ADDITIONAL COURSE GUIDELINES**

1. Come to class; arrive on time, and please the instructor or TA know ahead of time if you cannot make it.
2. Come to lectures and team problem-solving sessions having completed assigned readings, and prepared to ask questions about the topic/reading material.
3. Work effectively and in a timely fashion with your small group / One Health team to prepare group problem-solving presentations and reports.
4. Schedule and complete your self study field visits and reports in a timely manner.
5. Food and drinks are welcome during class sessions (but please keep it quiet and clean up spills).
6. Be courteous, refrain from unnecessary talking, reading newspapers, etc. As above, the use of phones or computers for personal activities such as email and social media during class sessions is not allowed.
7. Share relevant experiences, perspectives, ASK QUESTIONS!
8. Let the instructor and/or TA know if you feel the class is moving too fast, too slow, or not being clear.
9. Let the instructor know if you are having difficulties with your group in terms of interactions affecting the group work, and I will do all I can to facilitate improved group dynamics and effectiveness.
10. Let the instructor and/or TA know of any logistical issues experienced with field visits.

### **ACADEMIC INTEGRITY**

Students at the University of Washington 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/>). 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.

## ACCESS AND ACCOMMODATIONS

The student experience in this class is important to the instructors. An important policy and practice of the University of Washington is to create inclusive and accessible learning environments consistent with federal and state law.

Students are asked and expected to establish accommodations with the Disability Resources for Students (DRS--at 206-543-8924 or [uwdrs@uw.edu](mailto:uwdrs@uw.edu) (<mailto:uwdrs@uw.edu>) or [disability.uw.edu](http://depts.washington.edu/uwdrs/) (<http://depts.washington.edu/uwdrs/>)), and then communicate all approved accommodations to the instructor at the earliest opportunity. 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 the student, instructor and DRS. Qualifying conditions could include but are not limited to mental health, attention-related disabilities, learning disabilities, vision, hearing, physical or health impacts.

Upon learning of approved accommodations by DRS, we can discuss student needs in this course. If students have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations, students are encouraged to contact DRS at 206-543-8924 or [uwdrs@uw.edu](mailto:uwdrs@uw.edu) (<mailto:uwdrs@uw.edu>) or [disability.uw.edu](http://depts.washington.edu/uwdrs/) (<http://depts.washington.edu/uwdrs/>), as soon as possible.

## Course Summary:

Date	Details	
Wed Apr 3, 2019	 <a href="#">Preparation for Session 2</a> <a href="https://canvas.uw.edu/courses/1289478/assignments/4746041">https://canvas.uw.edu/courses/1289478/assignments/4746041</a>	due by 11:59pm
Mon Apr 8, 2019	 <a href="#">Preparation for Session 3</a> <a href="https://canvas.uw.edu/courses/1289478/assignments/4730169">https://canvas.uw.edu/courses/1289478/assignments/4730169</a>	due by 8:30am
Wed Apr 10, 2019	 <a href="#">Preparation for Session 4</a> <a href="https://canvas.uw.edu/courses/1289478/assignments/4742534">https://canvas.uw.edu/courses/1289478/assignments/4742534</a>	due by 11:59pm
Mon Apr 15, 2019	 <a href="#">Preparation for Session 5</a> <a href="https://canvas.uw.edu/courses/1289478/assignments/4742749">https://canvas.uw.edu/courses/1289478/assignments/4742749</a>	due by 11:59pm

Date	Details	
Wed Apr 17, 2019	 <a href="https://canvas.uw.edu/courses/1289478/assignments/4789642">Case Study 1 Preparation</a> ( <a href="https://canvas.uw.edu/courses/1289478/assignments/4789642">https://canvas.uw.edu/courses/1289478/assignments/4789642</a> )	due by 8:30am
Fri Apr 19, 2019	 <a href="https://canvas.uw.edu/courses/1289478/assignments/4789648">Case Study Write-Up</a> ( <a href="https://canvas.uw.edu/courses/1289478/assignments/4789648">https://canvas.uw.edu/courses/1289478/assignments/4789648</a> )	due by 11:59pm
Wed May 1, 2019	 <a href="https://canvas.uw.edu/courses/1289478/assignments/4795958">Zoo Self Study #1</a> ( <a href="https://canvas.uw.edu/courses/1289478/assignments/4795958">https://canvas.uw.edu/courses/1289478/assignments/4795958</a> )	due by 11:59pm
	 <a href="https://canvas.uw.edu/courses/1289478/assignments/4774721">In Class 4/3</a> ( <a href="https://canvas.uw.edu/courses/1289478/assignments/4774721">https://canvas.uw.edu/courses/1289478/assignments/4774721</a> )	
	 <a href="https://canvas.uw.edu/courses/1289478/assignments/4800365">Midterm Review Sheet</a> ( <a href="https://canvas.uw.edu/courses/1289478/assignments/4800365">https://canvas.uw.edu/courses/1289478/assignments/4800365</a> )	
	 <a href="https://canvas.uw.edu/courses/1289478/assignments/4745985">Preparation for Session 10</a> ( <a href="https://canvas.uw.edu/courses/1289478/assignments/4745985">https://canvas.uw.edu/courses/1289478/assignments/4745985</a> )	
	 <a href="https://canvas.uw.edu/courses/1289478/assignments/4782662">Preparation for Session 8</a> ( <a href="https://canvas.uw.edu/courses/1289478/assignments/4782662">https://canvas.uw.edu/courses/1289478/assignments/4782662</a> )	