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# ENV H 442: Zoonotic Diseases & Their Control

## Course Syllabus Spring Quarter 2019

This course explores zoonotic and vector-borne diseases of current importance in Public Health, and the role that animals play as reservoirs, hosts and vectors -- both locally and globally. We also will explore the general approaches and methods used to control common Public Health vectors of disease.

### Meeting Times and Locations:

8:30 - 9:50 a.m., Tuesday & Thursday  
Room E-212, Health Sciences Center

### Instructor:

Charles D. (Chuck) Treser, MPH, DAAS  
Principal Lecturer Emeritus  
Dept. of Env. & Occ. Health Sciences

**Office:** F-226D Health Sciences Center

**Office Hours:** 9:00-10:00 a.m. MWF; and 1:30 - 3:00 p.m., Monday - Friday

**Email:** ctreser@u.washington.edu

**Telephone:** 206-616-2097

\*These are my general office hours, during which times I have an open-door policy; however, I often need to be away from my office during these times to attend various school, departmental or University meetings, so I highly recommend that you check the weekly calendar/schedule posted outside my office door to check on my availability or even better to schedule an explicit appointment at any open time slot on the calendar.

### Class Climate and Mutual Respect:

Diverse backgrounds, embodiments, and experiences are essential to the critical thinking endeavor at the heart of university education. The UW School of Public Health seeks to ensure all students are fully included in each course. We strive to create an environment that reflects community and mutual caring, while we ally with others in combating all forms of social oppression, including those based on 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 encourage students with concerns about classroom climate to talk to your instructor, your advisor, or the Student Services Counselor. The UW Bias Incident Reporting tool is also available at <https://report.bias.washington.edu/>

### Course Description:

From the dawn of human history until the present day humans and animals around the world have been sharing their pathogens and diseases. Typhus, Yellow Fever, Malaria, Bubonic Plague, Dengue, etc. have all affected the course of history and their causative agents continue to be present

in our environment, along with new “plagues” like Hantavirus, Lyme Disease, West Nile Virus and Zika virus.

This course takes a global perspective as once local diseases or newly emerging diseases can be rapidly spread around the world thanks to our increasingly mobile population and the swift movement of goods and services around the globe.

Zoonotic diseases are diseases affecting human populations in which one or more animals play a significant role in their causation or transmission. Many diseases involve an intermediary living organism or vector which plays an important role in the transmission cycle between the pathogenic organism and the human victim. This course examines zoonotic and vector-borne disease of historic and current importance in the United States and around the world. We will study the impact of rodent and arthropod vectors of disease — including those of historical importance as well as endemic and emerging diseases.

Identification, surveillance and control methods will be examined with attention paid to pesticide use, regulation and safety measures.

### **Course Learning Objectives:**

It is intended that at the completion of this course, each student should be able to:

1. describe, in general terms, the cause(s), signs, symptoms, and importance of the zoonotic or vector borne diseases of public health significance -- regionally, nationally and internationally;
2. identify the major species of rodents (rats and mice) that are important from a public health perspective and describe the geographic range and distribution patterns for each;
3. describe the behavioral characteristics of rodents related to the identification and control of rodent problems;
4. identify rodent signs, indicating the species and extent of a rodent infestation;
5. describe the characteristics of a community rodent control program and the steps in planning and implementing a program and conducting a rat survey;
6. conduct an urban rodent survey and analyze the results;
7. describe the life cycle, anatomy, role in disease transmission, and control measures for: mosquitoes and other flies, cockroaches, ticks, lice and fleas;
8. describe the typical habitats preferred by important arthropod disease vectors and relate this information to arthropod identification and control;
9. define Integrated Pest Management (IPM) and use IPM principles to design and carry out an appropriate surveillance, monitoring and control program for at least one zoonotic or vector-borne disease problem;
10. describe the physical form, mode of entry, application, and the mode of action for major pesticides used in public health vector control;
11. describe the role of state and federal agencies in regulating pesticides and the legislation regulating pesticides; and, and,

12. describe and follow the safety measures necessary in the use of particular pesticides in order protect non-target organism (including humans) and the environment.

### Course Requirements & Polices:

#### 1. Academic Integrity: (<http://sph.washington.edu/students/academicintegrity/>)

Students at the University of Washington (UW) are expected to maintain the highest standards of academic conduct, professional honesty, and personal integrity. Assignments may be evaluated using VeriCite\*, which is a tool to help evaluate the integrity of written assignments.

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. 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.

\*The UW adopted VeriCite for plagiarism detection in autumn quarter 2016. VeriCite is a web-based system that allows student papers to be submitted and checked for plagiarism. The system compares student papers with sources available on the Internet, select commercial article databases, and papers submitted at the UW.

#### 2. Access and Accommodation: (<http://depts.washington.edu/uwdrs/faculty-resources/syllabus-statement/>)

Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS.

Disability Resources for Students  
448 Schmitz Hall, Box 355839  
Seattle, WA 98195-5839  
uwdss@u.washington.edu  
<http://www.washington.edu/students/drs/>  
Phone: 206-543-8924 (Voice)  
206-543-8925 (TTY)

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. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

**3. Grades:** Your course grade will be based on the total number of points you accumulate during the quarter: points accumulated divided by the total number of points possible. See the Faculty Resource on Grading (<http://depts.washington.edu/grading/practices/guide-lines.html>) for guidance on interpreting your grade.

a. **Class participation:** This class will be conducted as a mix of lectures, exercises and seminar-like discussions. Student will need to read the assigned materials before coming to class in order to be able participate in the discussions and exercises. The class will work together in teams to examine a particular aspect of the course content, solve a problem or conduct an activity.

b. **Exercises and Examinations.** For each module there will be a class exercise or quiz. Some of these will involve group work, while others will be done independently. There will also be two examinations -- both will be administered using the Canvas quiz function. As such they are to be completed outside of the classroom and are open book, open note tests.

c. **Class Project/Term Paper.** The class will be divided into several teams that will conduct an actual rodent survey of a Seattle neighborhood. Each group will prepare a final report in which you present the results of your survey, characterizing the nature and extent of the rodent problems found and presenting detailed recommendations for corrective action(s). Your recommendations need to be supported by appropriate literature documenting the appropriateness of your methods to the problems which you have identified. Each paper should be typed with appropriate end notes, bibliography including all references used. Copies of your block record sheets and summary sheets should be appended to your report. The information you present and your bibliography should reflect your ability to search the library and obtain relevant information from many sources, including scientific/professional journals, trade journals, and government reports. Use of only one or two references (or only references from internet sites) is not considered adequate or acceptable. This is an exercise in report writing typical of the type of reports which an environmental health practitioner is expected to be able to routinely produce.

**Format:** You do not need to use a cover but must have a title page. Make sure all of your names, the class, the date and the title of your report are included on the title page and follow this with the text, bibliography, and appendices. Include page numbers after the first page. Staple the report in the upper left hand corner. You should not use type larger than 12 point (or smaller than 10), triple space, or wide margins.

**Evaluation of Papers:** Your paper will be evaluated on the following points:

- 1) Data collection, organization, analysis and synthesis;
- 2) Appropriateness of your recommendation;
- 3) Organization, general composition, spelling, and use of citations, bibliography and end notes; and,
- 4) Appropriate use and citation of evidence.

**Documentation of sources:** All information presented in any written assignment must include the correct and proper attribution of the source of that evidence or information. You may use any standard style manual but it must be used consistently and correctly throughout

the paper. See the UW Health Sciences Writer's Guide (Links to an external site.) for information and style guides.

### Course Materials:

#### 1. Textbooks:

- a. Rozendall JA. *Vector Control: Methods for use by individuals and communities*, Geneva, World Health Organization, 1997. ISBN 92 4 154494 5 (Full PDF Version 38.8 MB) (WHO online link: [http://www.who.int/whopes/resources/vector\\_rozendaaten/](http://www.who.int/whopes/resources/vector_rozendaaten/) in smaller chunks)
- b. Bennett GW, Owens JM, Corrigan RM. *Truman's Scientific Guide to Pest Management Operations*, 7th Edition, Purdue University/Questext Media, Cleveland, Ohio, 2010.
- c. Pratt H, et al. *Biological Factors in Domestic Rodent Control and Control of Commensal Rats & Mice*, US Centers for Disease Control and Prevention, Atlanta GA, 1976.
- d. Pratt HD, Moore CG. *Mosquitoes of Public Health Importance and Their Control*, CDC, 1993.

2. **Handouts:** In addition, selected handout materials will be made available on the course website or reproduced and handed out in class.

3. **Reading Assignments:** Most of the assignment for the course are listed on the Class Schedule. Additional assignments will be made in class.

### Other Reading Materials:

#### 1. Books and Manuals:

- a. Zinsser H. *Rats, Lice and History*, Little, Brown, and Company, 1935.
- b. Garrett L., *The Coming Plague: Newly Emerging Diseases in a World Out of Balance*. Penguin Books, New York, 1995.
- c. Burgess NRH. *Public Health Pests*, Chapman and Hall, London, 1990.
- d. Ware GW. *Complete Guide to Pest Control With and Without Chemicals*, 2nd Ed., Thompson Publications, Fresno CA, 1988.
- e. Ware GW. *The Pesticide Book*, 4th Ed., Thompson Publications, Fresno CA, 1994.
- f. Diamond J, *Guns, Germs and Steel: The Fates of Human Societies*, W.W. Norton & Co., New York, NY 1997.

#### 2. Journals and Other Publications:

- a. Vector-borne and Zoonotic Diseases
- b. Journal of Economic Entomology
- c. Pest Control (Available in EH Library)
- d. Journal of Environmental Health
- e. American Journal of Public Health
- f. World Health Organization Reports and Monographs