

## ENVH 441 FOOD PROTECTION COURSE SYLLABUS 2018

**MWF 1:30 - 2:20**

Instructor: Charles Easterberg, Lecturer

**HSB I-132**

Environmental Health Program

**Winter/Spring Quarters**

Office: peripatetic

Phone: 206.914.2380

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

u

**Office Hours: by appointment only**

### Course Overview

In ENVH 441, we study food protection: the measures taken to assure that food intended for human consumption will not cause illness or have adverse effects on consumers' wellbeing. A major transition is now taking place in how regulatory agencies and food service operators conduct food protection activities. A large 1993 foodborne disease outbreak involving *E. coli* 0157:H7 produced great interest in and concern about food safety by the media and public and continues to stimulate changes in food protection programs. Historically, food protection program regulatory activities emphasized looking for potential health hazards associated with the physical environment during routine food establishment inspections, e.g., soiled walls, floors and ceilings. Hazard Analysis/Critical Control Point (**HACCP**) thinking has been replacing this with *process thinking* vs. *static thinking*.

Emphasis during the course's first half is on the history, social and scientific changes, organisms and chemicals associated with foodborne illness, agents' sources, how they may be introduced into and/or multiply in foods, and characteristics of the illnesses they cause. The course's second half covers steps taken by government agencies, industry and professionals to prevent foodborne illnesses associated with **retail** food service establishments (restaurants, cafeterias, etc.) and practices in food services. This course does not address food protection measures at the manufacturing, production or wholesale levels although many of the same concepts apply to all.

Our **textbooks**, Longrée & Armbruster's *Quantity Food Sanitation*, 1996 fifth edition, and USPHS / FDA *Food Code 2009* explore sanitary practices and regulation of retail food operations as our major references. FDA's first *Food Code 1993* replaced and greatly improved the earlier 1978 FDA model food code. Because of the numerous major changes required by *Food Code 1993* and as research discovers new facts about foodborne illness, *Food Code* has been revised every two years to maintain currency but

is now revised at 4-year intervals. *Food Code 2009* with a few amendments became Washington State's food code in 2013, and has been adopted by almost all states' public health agencies. *FC 2009's* website is: <http://vm.cfsan.fda.gov/~dms/fc09-toc.html> (<http://vm.cfsan.fda.gov/~dms/fc09-toc.html>) *FC 2017* will be the next WA food code.

The **Course Pack** contains many materials not readily found in reading assignments, serves as your study guide and is available at the University Bookstore on the Ave for ~\$30.

We will have three guest lecturers during the quarter:

- **Marguerite Pappanaiou** from FDA/CDC will discuss current food safety challenges, the epidemiology of foodborne illness, and what defines a potentially hazardous food.
- **Janet Anderberg**, DOH food protection specialist, will discuss HACCP--the greatest development in food processing protection and now for retail food establishments ever.
- **John Owens**, Ecolab, Inc. district manager, will explain soaps, detergents, sanitizers and ware washing, or what is required for eating utensils to get safely clean.

### **Course Activities:**

1. **Exams.** There will be two exams of equal value (~100 points). Question types will include multiple choice, true-false, fill-in-the-blank and short-answer based on readings, lecture / class discussion, field trips and the course objectives. Each exam will cover half the quarter's material and be 50 minutes long (up to two hours on the final).
2. **Quizzes.** A short quiz (10 points each) covering that day's and the preceding session's readings and class discussion *may* be given on any Wednesday or Friday.
3. **Oral Report.** Gaining valuable practice before you go out into the real world to convince people of your viewpoints is essential to effective public health practice. During the quarter's second half, each student will partner with another student and present a formal joint report to the class on a selected topic; each person gets to speak 4 minutes. This exercise is to give you practice standing in front of a group of your peers and sharing a specific bit of information with them in an understandable and orderly manner. Up to two presentations may be scheduled after the midterm exam at the beginning of class sessions. Therefore, some people will give their presentation earlier than others.

Your presentation must use PowerPoint™. Please email me your presentation at least 1 day before you are scheduled to give it so that I can put it on my laptop. You are welcome to meet with me to discuss your presentation before you are scheduled to give it.

This is to be a formal presentation during which you should state the problem or subject you are addressing, the significant points about it, and your conclusion(s). Practice your presentation in advance of the session to be sure you do not exceed your 4-minute time limit. Just give a very few facts that you select as significant and that the class should know regarding your topic; there isn't time to provide many descriptive details or explanations. You may use notes during your presentation but will lose points if you

descriptive details or explanations. You may use notes during your presentation but will lose points if you read the presentation. Be prepared to answer brief questions afterward. Try to **enjoy** this experience; you are enlightening your colleagues, not defending your Ph.D. thesis ☺

4. **Field Trip and Inspection Paper.** I will give you an EHS inspector's name and contact information whom **you** must contact to arrange a day, time and place to meet for your field trip to a restaurant(s). **As soon** as you get the inspector's name from me, phone or email her/him to schedule a half day or longer visit for a time **after** your UW food service field trip. You may make this field trip with one other student if it is OK with the EHS taking you. Two students with one EHS is the maximum. Before going on your survey with the EHS, be familiar with the general content of the *Washington State Board of Health Rules and Regulations for Food Service WAC 246-215 (Food Code 2009 with Washington State amendments)*.

One purpose of this assignment is for you to demonstrate and practice your writing skills. After the trip, prepare **your own** detailed and descriptive report presenting your observations and evaluation of the field trip, including whether you thought the inspector did a proficient job and why or why not. Put your name in the upper right corner of the front page, center the title *Observations and Evaluation of Food Establishment Inspections* a short distance from the top of the page, and follow this by the text. Number pages at the bottom. Staple the upper left corner and do not put it in a cover or jacket. It should be long enough to cover your observations in sufficient detail but not excessively verbose, and not exceed 5 pages. You may 1) bring this to the final or 2) campus mail it to me at 357234 or drop it off in my hall mailbox outside F-463.

**Organize your report into these 5 sections:**

1. EHS inspector's name with whom you surveyed.
2. Discuss the EHS's pre-inspection preparations, equipment, etc. Comment on undone things you think might be important too.
3. Identify each establishment you visited and describe the procedure the EHS followed entering the establishment, conducting the inspection, conferring and exiting.
4. Discuss the findings and recommendations or actions the EHS wanted taken at each establishment.
5. Give your evaluation/assessment of how the inspections were performed, how effective you think they were (e.g., will they change operator behavior?), and how this experience agreed with or varied from what was covered in class and readings.
6. **Class Participation:** You are expected to have read class assignments and reviewed study questions when provided **before** each class session, and be prepared to answer questions; your questions to me are always welcome. Your attendance is important if there is to be reasonable class participation and is **required** on the dorm field trip and when there are guest speakers.
7. **GRADING IS BASED ON TOTAL POINTS ACCUMULATED**

Points are assigned as follows:

Midterm exam = 100 points + a few

Final exam = 100 points + a few

Field trip report = 30 points

Oral report = 20 points

Quizzes = 10 points each

Points may be deducted for unexcused absence from required sessions.

## **COURSE OBJECTIVES**

**Upon completion of this course a student should be able to:**

7. Identify major changes in American food production practices and the problems associated with food protection and food protection programs. Sessions 1, 2
  1. State the major functions, emphases and authority of the US Department of Agriculture, Food and Drug Administration, and state and local health departments in the area of food protection.  
3
8. Define the causes of "spoiled" food and the environmental conditions affecting spoilage.  
4
9. Identify the major food preservation methods, advantages & risks of each, and how preservation principles apply to foodborne illness prevention. 4
10. Describe discoveries that have happened over history that have changed food protection practices.  
4
  1. Define "foodborne disease outbreak", distill lessons from historical outbreaks, and be able to list the objectives and methods of a good foodborne disease surveillance program.  
5
11. Discuss major foods involved, contributing factors, and geography of foodborne disease outbreaks according to national and state surveillance data. 5
12. Identify major toxins, chemical and biological agents capable of causing foodborne illness. Provide information on the etiology of the major diseases and appropriate control measures for each agent (e.g., heavy metals, nitrites, sulfites, mushroom toxins, PSP and domoic acid (ASP), parasites, Hepatitis A, Noro- and Rotaviruses, and *Staphylococcus*, *C. perfringens*, *C. botulinum*, *Salmonella*, *Shigella*, *Yersinia*, *Campylobacter*, *E. coli*, *Listeria*, *Vibrio* and *B. cereus* bacteria.  
6 - 11
13. Define and characterize "potentially hazardous food"; explain changes in early definitions and list measures required to reduce the potential for such foods to become hazardous.  
12
14. Distinguish between Washington State's current food regulations and earlier editions as a result of FDA *Food Code 2009* adoption. 12
15. Name the HACCP concept's 7 steps and how they are implemented. 14, 15
16. Discuss application of food protection principles by inspection of a food service establishment. Understand establishment inspection principles in detail. 16
17. Discuss the relationship of time and temperature to food cooling, holding, storage, and foodborne

pathogen growth, how food thermometers function, and correct food temperature monitoring.	19, 20	
18. Discuss food service worker and manager education, training and certification problems.		21
Describe the approved procedures and conditions for washing and sanitizing tableware.	22	
16. Describe detergents' and sanitizers' major ingredients, methods of operation, and functions.	23	
17. Describe the use and effectiveness of heat and chemical sanitizers.		23
18. Have knowledge of air removal, lighting, plumbing needs and pest management in food establishments as they relate to food protection.		24
19. Describe parameters for safe retail food storage, preparation and service.		25
20. Identify the criteria used in food service equipment design, construction and placement.	26	
21. Describe the factors which assure that milk, shellfish, mushrooms and other foods are safe products.		27

### **Academic Integrity Statement**

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/). 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.

### **Disability Resources Statement**

**Access and Accommodations:** Your experience in this class is important to me. Students needing disability accommodations to attend class please inform me or contact Disability Resources for Students in 448 Schmitz Hall at 206.543.8924. If you have already established accommodations with Disability Resources for Students (DRS) or have a letter from Disability Resources, 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 at 206-543-8924 or [uwdrs@uw.edu](mailto:uwdrs@uw.edu) or [disability.uw.edu](http://disability.uw.edu).

[\(http://depts.washington.edu/uwdrs/\)](http://depts.washington.edu/uwdrs/) 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.

Syllabus 2018

1/52018

### Schedule & Reading Assignments

**ENV H 441 A Food Protection**

**Charles Easterberg**

**Winter 2018**

**CLASS SESSION & READING SCHEDULE**

**Office: peripatetic**

**MWF 1:30 - 2:20 pm**

**206.914.2380**

**HSB I-132**

**L= Longree & Armbruster: *Quantity Food Sanitation* 5<sup>th</sup> ed. 1996**

**CP= Course Pack**

**FC=Food Code 2009 website:**

<http://www.fda.gov/food/foodsafety/retailfoodprotection/foodcode/foodcode2009/default.htm>

<http://www.fda.gov/food/foodsafety/retailfoodprotection/foodcode/foodcode2001/default.htm>

-

<b>#</b>	<b>Date</b>	<b>Day</b>	<b>Topic</b>	<b>Read before class</b> __
1	1 / 3	W	Introduction; Class Information  What's Happening in Food Now	No readings
2	1 / 5	F	Current Challenges in Food Protection	L. pp. 28; 57 – 70

3	1 / 8	M	Food Protection Agencies  Who's Responsible for What?	L. pp.	195 – 205
4	1 / 10	W	Food Spoilage & Preservation	L. pp.	1 – 27
5	1 / 12	F	Foodborne Disease Outbreaks  Marguerite Pappaioanou, FDA/CDC	<i>Foodborne Outbreaks</i>  92-96: MMWR  Oct 25, 1996 (CHP)	
<b>H</b>	1 / 15	M	<b>HOLIDAY:</b> Martin Luther King Jr. Day		
6	1 / 17	W	Chemicals, Metals, Poisonous Plants	L. pp.	29 – 42
7	1 / 19	F	Viruses and Parasites: Food as a Vehicle	L. pp.	42 - 52
8	1 / 22	M	Foodborne Intoxication-- <i>C. botulinum</i> ,  <i>Staphylococcus</i> , <i>C. perfringens</i> , <i>B. cereus</i>	L. pp.	70 - 88
9	1 / 24	W	Foodborne Infection Organisms (1) Salmonella,  <i>Shigella</i> and <i>E. coli</i> 0157:H7	L. pp.	88 - 99
10	1 / 26	F	Foodborne Infection Organisms (2) <i>Vibrio</i> ,  <i>Campylobacter</i> , <i>Yersinia</i> , <i>Listeria</i>	L. pp.	99 – 106
11	1 / 29	M	Finish Foodborne Pathogens		No assigned reading
12	1 / 31	W	Potentially Hazardous Foods	L. pp.	115 – 171

12	1 / 31	W	Potentially Hazardous Foods	L. pp. 145 – 174
			Marguerite Pappaioanou, FDA/CDC	L. pp. 273 - 294
13	2 / 2	F	<b>MIDTERM EXAM</b>	
14	2 / 5	M	Introduction to HACCP	L. pp. 397 - 426
				FC Anx 4 501
-505				CP: HAACP paper
1.	35–49			
15	2 / 7	W	HACCP Application	CP: Bryan HACCP
			Janet Anderberg, WA State Health Dept.	pp. 978-83
16	2 / 9	F	The Art of Inspection	FC Annex 4 537 - 570
				FC pp. 71- 74
17	2 / 12	M	Field Trip to LocalPoint (Lander Hall)	No assigned reading
			Last names beginning A - K	
18	2 / 14	W	Field Trip to Mac 8 (McMahon Hall)	No assigned reading
			Last names beginning L - Z	
19	2 / 16	F	Time & Temperature Relationships	L. pp. 297 - 339
			Heating & Cooling Foods	L. pp. 348 - 393
H	2 / 19	M	<b>HOLIDAY:</b> Washington's & Lincoln's Birthdays	No assigned reading



20	2 / 21	W	Temperature Monitoring	FC pp. 82-85; 115
				FC Anx 3 393
-414				FC Anx 5 551- 560
21	2 / 23	F	Food Service Workers & Managers	L. pp. 226 – 229
			1. pp. 239 - 244	
			2. pp. 432 - 449	
				FC Anx 3 324 - 367
				383 - 386
22	2 / 26	M	Ware Washing & Sanitizing	L. pp. 258 - 263
				FC pp. 116 - 117
				120 -121; 126-30
				132 -38; 140-141
				FC Anx 3 461 - 467
23	2 / 28	W	Detergents and Sanitizers John Owens, Ecolab Inc	CP: Haverland paper 331-335
24	3 / 2	F	General Food Service Environment	L. pp. 229 - 251
				FC Anx 3 483 - 498
25	3 / 5	M	Food Service Equipment: Function, Design and Construction	L. pp. 254 - 258
				FC pp. 107 - 112
				FC Anx 3 444 – 452
26	3 / 7	W	Food Sources & Critical Foods	L. pp. 136 - 145
				FC pp. 49 - 60

27 3 / 9 F Wrap-up, review, discussion

No assigned readings

28 3 / 12 Monday FINAL EXAMINATION I-132: 2:30 – 4:20 p.m.

**Hand in Field Trip Reports**

-

**Guest Lecturers:**

**Janet Anderberg**, Food Safety Expert, WA State Health Department

**John Owens**, Institutional Division Manager, ECOLAB, Inc.

**Marguerite Pappaioanou**, FDA/CDC Epidemiologist (retired)