NFS 195 B Deadly Food: outbreak investigations (3 credits)

Location:
Marsh Life Sciences 235, T 10:05 am-11:20am; Teams Thursday 10:05am-11:20am

Instructor:
Dr. Andrea Etter. Office hours on Teams; email me at andrea.etter@uvm.edu to set up an appointment

Pre-requisites or co-requisites:
NFS 153 or MMG 101 or ASCI 001, or instructor permission

Course Description

Investigate how U.S. public health officials discover, investigate, and solve foodborne outbreaks. This course will introduce you to common pathogens and foods involved in outbreaks in the U.S., the laboratory and investigative methods officials use to solve the outbreaks, and the government agencies involved. The second half of the semester will focus on case studies of famous outbreaks.

Course Learning Objectives

- Students will be acquainted with the major foodborne pathogens in the U.S. as well as key risky foods
- Students will understand the key methods used to investigate foodborne outbreaks and their strength and limitations
- Students will be able to identify the government agencies involved in outbreak investigation and understand their unique roles
- Students will understand the factors which may lead to outbreaks of foodborne illness
- Students will be able to analyze and dissect outbreak reports for key outbreak features
- Students will be able to apply information in the course towards recognizing and making smart food safety choices

Required Course Materials:

FDA Bad Bug Book, 2nd Edition: https://www.fda.gov/media/83271/download

Attendance Policy and Classroom Environment Expectations:

Due to the discussion-based nature of this course, your attendance is necessary to obtain a good grade and stay caught up on the material. If you must miss a day, please let me know in advance, and I will work with you to make up any missed assignments.

Grading Criteria/Policies: **Late assignments will not be accepted without my ok in advance.**

Grade breakdown:	350 pts possible
13 weekly quizzes, 10 pts each:	130 pts
8 outbreak analysis/reports, 10 pts each:	80 pts
Raw milk report	20 pts
Consumer knowledge quiz report	20 pts
Participation in class discussions	50 pts
Final paper/outbreak report:	50 pts

Final grades will be calculated as earned percentages of the total points possible:

97-100: A+	**93-96: A**	**90-92: A-**
87-89: B+	**83-86: B**	**80-82: B-**
77-79: C+	**73-76: C**	**70-72: C-**
67-69: D+	**63-66: D**	**60-62: D-**

≤59: F

***** You are responsible for keeping track of your grades. Grades on Blackboard may or may not be fully up to date.*****

Assignments and Assessments:

*QUIZZES (**10 pts**):* Each **Tuesday**, we will have a quiz on the material from the previous week.

*ANALYSIS REPORTS (**10 pts**):* For each outbreak, you will be required to read the CDC's final outbreak report and write a short **(1 page, single spaced**) analysis of the severity of the outbreak (length, hospitalization rate, deaths), any contributing or unusual factors involved in the outbreak, and any ways in which a similar outbreak might be prevented in the future. You will need to find and integrate outside sources to do get full marks on this assignment

CONSUMER KNOWLEDGE & RISK PERCEPTION SURVEY (20 pts)*:* You will collaborate to develop an online survey for friends and family/fellow students asking about food safety knowledge, habits, and risk perception. You will each write an analysis report after the survey has completed reflecting on the results of the survey as well as its shortfalls, and comparing it to the data previously discussed in class (sources will be posted to BB).

REPORT ON SAFETY OF RAW MILK (20 points): this will a **1-page** (single-spaced) research paper on the issues and argument surrounding the safety and/or benefits of raw milk. You will be expected to find both scholarly and non-scholarly sources for this and discuss the merits and efficacy of different persuasive arguments against raw milk.

CLASS DISCUSSION PARTICIPATION POINTS (50 points): you should expect to participate in at least 10 of the class discussions on outbreaks, and you ***must participate in the discussions on raw milk and the class survey***.

*FINAL PAPER (**50 pts**):* In lieu of a final exam, each student will be required to write a final paper. This is expected to be an in-depth examination of an outbreak not covered in class. Details will be provided

Grade Appeals:

If you would like to contest a grade, please follow the procedures outlined in this policy: https://www.uvm.edu/policies/student/gradeappeals.pdf

Course Evaluation:

Course evaluations are critical for improving the course for future students as well as providing anonymous feedback on the instructor for professional development and promotion decisions. I will provide time in class during the final week of class for you to fill out the course evaluations.

Student Learning Accommodations:

In keeping with University policy, any student with a documented disability interested in utilizing accommodations should contact SAS, the office of Disability Services on campus. SAS works with students and

faculty in an interactive process to explore reasonable and appropriate accommodations, which are communicated to faculty in an accommodation letter.

Contact SAS:

A170 Living/Learning Center; 802-656-7753; access@uvm.edu ; www.uvm.edu/access

Religious Holidays:

Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time.
https://www.uvm.edu/registrar/religious-holidays

Academic Integrity:

The policy addresses plagiarism, fabrication, collusion, and cheating.
https://www.uvm.edu/policies/student/acadintegrity.pdf

Promoting Health & Safety:

The University of Vermont's number one priority is to support a healthy and safe community:

Center for Health and Wellbeing: https://www.uvm.edu/health

Counseling & Psychiatry Services (CAPS) Phone: (802) 656-3340

C.A.R.E. If you are concerned about a UVM community member or are concerned about a specific event, we encourage you to contact the Dean of Students Office (802-656-3380). If you would like to remain anonymous, you can report your concerns online by visiting the Dean of Students website at
https://www.uvm.edu/studentaffairs

NOTE REGARDING THIS SEMESTER

As we are in the middle of a pandemic, change is the only constant. If a major change to content, assignments, or due dates is necessitated, I will revise the syllabus. Syllabus revisions will be posted with a note describing changes since the previous version. Always check due dates with the syllabus version on Blackboard.

COURSE SCHEDULE:

Date	Topics/Activities	Quizzes	Readings/Preparation
T 2/2	Introductions; Scallan et al., 2011 ERS 2015 report	Knowledge quiz	Download FDA Bad Bug Book off Blackboard
Th 2/4	Outbreak investigation basics; intro to *E. coli*		Read: BBB on STEC and non-STEC *E. coli;*
T 2/9	E. coli Jack in the Box outbreak discussion	Quiz	outbreak analysis
Th 2/11	Food Safety Epi: historic methods		
T 2/16	E. coli in raw flour (U.S.)	Quiz	outbreak analysis
Th 2/18	Food Safety Epidemiology current methods: WGS (SNP-based, cgMLST, wgMLST);		Watch videos of WGS on Blackboard;
T 2/23	EU rare STEC *E. coli* in sprouts discussion	Quiz	outbreak analysis
Th 2/25	Global partners in Epidemiology: EU, Asia, Latin America, Canada;		
T 3/2	**TOWN MEETING DAY NO CLASS**	**No class/no quiz**	**NO CLASS**
Th 3/4	Intro to *Salmonella*;		Read: BBB on *Salmonella*
T 3/9	Foster Farms outbreak	Quiz	Watch *The Trouble with Chicken* PBS; read CDC report
Th 3/11	Outbreaks of salmonellosis from backyard chickens; USDA risk estimate for raw eggs		
T 3/16	National Peanut Corporation *Salmonella* outbreak discussion;	Quiz	
Th 3/18	*Salmonella* wrap up; consumer food safety knowledge/survey development		Develop survey for friends and family (YellowDig)
T 3/23	Hepatitis A virus in strawberries (U.S.), Frozen berries (EU)	Quiz	outbreak analysis
Th 3/25	Bacillus outbreak/issues/Chipotle outbreak. Tracking foodborne illness via social media;		
T 3/30	Clostridium botulinum poisoning; home canning outbreaks/fermented indigenous Alaskan foods	Quiz	outbreak analysis
Th 4/1	Intro to *Listeria monocytogenes* and RTE foods		Read: BBB on *Listeria*
T 4/6	Cantaloupes from CO & IN *Salmonella* and *Listeria* outbreak discussions	Quiz	outbreak analysis
Th 4/8	Outbreaks, ready to happen: *Listeria* and the deli environment		

T 4/13	The wonderful world of Romaine Outbreaks (discussion/**presentations**)	Quiz	outbreak analysis
Th 4/15	**Reading/Respite day NO CLASS**	**NO CLASS**	**NO CLASS**
T 4/20	BlueBell Ice cream *Listeria* outbreak discussion	Quiz	outbreak analysis
Th 4/22	Listeria in cheese; raw milk *Queso fresco* a nd *Listeria* in the Latino population,		
T 4/27	Survey reporting by students; analysis report/summary of survey results; Perceptions of risk for consumers	Quiz	Short report on results & analysis in context of published data
Th 4/29	Historic milk outbreaks and development of food safety legislation		
T 5/4	Raw milk outbreaks**; response to common raw milk arguments**	Quiz	Analysis report: safety of raw milk w/persuasive argument
Th 5/6	TBD		
T 5/11	Wrap up: where do we go from here with food safety? Takeaways, course evals	Quiz	
Th 5/13	Final paper due by 11:59 pm		outbreak not covered in class