PHR 250  
_Foodborne Infections and Intoxications_

Meets M & W, 6 to 8 p.m., Room 203 Surge IV  
D. O. Cliver and M. N. Hajmeer

This 4-unit elective course is intended for those who have had a first course in Food Microbiology (e.g., FST 104) or in Food Safety (e.g., VMD 413). Those who do not satisfy this should at least have had a first course in microbiology and be prepared to do additional reading. This second course offers a deeper understanding of the agents of foodborne disease, addresses the sources and fate of these agents as they may occur in foods, and then undertakes to apply this information in epidemiologic problem-solving. Possibilities for pre-harvest control will be considered for each agent, after which an overview will be presented. Guest instructors will be used to take advantage of special capabilities of the faculty.

**Introduction**

4/3 (A) 6 Classification of foodborne pathogens; sources of contamination  
7 Incidence of foodborne diseases  
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4/5 (B) 6 Bacteria: *Salmonella* spp  
7 Bacteria: *Campylobacter, Helicobacter, Arcobacter*  
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4/10 (C) 6 Bacteria: *Shigella* spp., *Yersinia enterocolitica*  
7 Bacteria: *Clostridium perfringens*  
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4/12 (D) 6 Bacteria: *Vibrio* spp.  
7 Bacteria: *Listeria monocytogenes*  
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4/17 (E) 6 Bacteria: *Escherichia coli*  
7 Bacteria: Other  
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4/19 (F) 6 Viruses & prions  
7 Parasites  
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4/24 (G) 6 Protozoa  
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**Toxigenic agents**

(G) 7 Seafood toxins, etc.  
4/26 (H) 6 Bacteria: *Bacillus cereus*  
7 **First midterm** (Infectious agents; 30% of grade)  
5/1 (I) 6 Bacteria: *Clostridium botulinum*  
7 Bacteria: *Staphylococcus aureus*  
5/3 (J) 6,7 Fungi and mycotoxins  
5/8 (K) 6 Poisonous plants and animals, residues
Food sanitation and preservation

(K)  7  Food preservation  Cliver
5/10  6  Microbiological testing of foods  Hajmeer, Cliver
       7  GMPs, SSOPs, SOPs, and HACCP  Hajmeer
5/15(M)  6  Antimicrobial interventions  Hajmeer
       7  Predictive modeling  Hajmeer
5/17 (N)  6,7  Microbial ecology of foods  Cliver

Foodborne disease outbreaks

5/22 (O)  6  Outbreak investigation methods  Hajmeer
6  Second midterm (Toxigenic agents, sanitation, preservation; 30% of grade)
5/24 (P)  6,7  Outbreak investigation problems  Cliver, Hajmeer
(5/29  Memorial Day)
5/31 (Q)  6,7  Outbreak investigation problems  Cliver, Hajmeer
6/5  6,7  Outbreak investigation problems  Cliver, Hajmeer
6/7 (S)  6,7  Outbreak investigation problems  Cliver, Hajmeer

Final exam—problem-solving take-home (open-book, individual effort; 40% of grade)


Faculty:

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Course web site:
Suggested readings:

About grades:
The midterm on 4/26 will cover the infectious agents, for 30% of the final grade. The second midterm, on 5/22, will cover the remaining material before the start of outbreak investigations and will count for another 30% of the final grade. Midterms will comprise objective and short-answer type questions that are intended to emphasize principles, rather than picky details (see last year's at course web site). For example, you are unlikely to be asked optimum growth temperatures of specific bacteria, but you need to remember which are gram-positive and which gram-negative.

The take-home final will entail investigation of model foodborne disease outbreaks. Although it will not be cumulative in the usual sense, you will be expected to apply everything you have learned during the course to solving these problems. You may use any reference material you wish, but you may not consult with any other person, whether a class member or not.

Awarding grades at the end of a course is one of my least favorite things, but I have not found a way to avoid it. There will be no preconceived curve or numerical norms, and no requirement that some specific portion of the class get unfavorable grades. I am more concerned with rewarding excellence than with giving “gotchas.”