

**BIOLOGY 459 (CRN 10352)**  
**HUMAN MICROBIAL DISEASES:**  
**MOLECULES TO COMMUNITIES**  
**September – December 2015**  
**COURSE OUTLINE**

**LECTURER:**

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**Lectures: Tu, Wed, Fri 12:30-13:20**

**Room: TBA**

**LEARNING OUTCOMES**

1. Understand the interaction between microorganisms and humans as hosts at various levels of complexity: individual, population, and community.
2. Identify different methods of control of microbial diseases such as antimicrobial drugs and vaccines.
3. Describe some of the most common microbial diseases in BC, Canada, North America and the world.
4. Develop ability to critically read primary literature and synthesize findings to prepare case reports.

**COURSE DESCRIPTION.**

Human diseases as they relate to the biology of pathogenic bacteria and viruses. Methods of control: antibiotics, antivirals, vaccines, and environments. Classification, pathogenicity, molecular diagnostic, epidemiology of various types of human diseases (respiratory, digestive, etc.).

**EVALUATION**

1. MID-TERM EXAM 1: (25 pts)
2. MID-TERM EXAM 2: (30 pts)
3. FINAL EXAM: (40 pts)
4. ASSIGNMENTS: (5 pts)  
Case Study Report (3 pages)

## 5. BONUS (5 pts)

1) Critical review of a peer-reviewed research article in epidemiology of infectious diseases. 2-page report and a 5-slide Powerpoint presentation. (5 pts)

Grading scheme: A<sup>+</sup> (90%-100%), A (85-89.9%), A<sup>-</sup> (80-84.9%), B<sup>+</sup> (77-79.9), B (73-76.9%), B<sup>-</sup> (70-72.9%), C<sup>+</sup> (65-69.9%), C (60-64.9%), D (50-59.9%), F (<50%)

### **TEXTBOOKS**

Roy, R. 2013. Selected Articles. (Available at UVic bookstore)

Pearson Custom Library for the Biological Sciences. 2015. BIOL 459 Human Microbial Diseases. (Chapters from Tortora et al. 2013)

### **Additional References**

Tortora, G.J., B.R. Funke, C.L. Case. 2013. Microbiology: an Introduction. 11<sup>th</sup> Ed. Pearson, Boston.

McNeil, W.H. 1998. Plagues and Peoples. Anchor Books (Random House): New York, NY. 365 p.

Madigan, M.T., J.M. Martinko, D.A. Stahl, D.P. Clark. 2012. Brock Biology of Microorganisms. 13<sup>th</sup> Ed. Pearson/Benjamin Cummings, San Francisco, CA, USA.

Mayer, K.H. and H.F. Pizer. 2008. The Social Ecology of Infectious Diseases. Academic Press, Amsterdam, The Netherlands.

Riley, L. 2004. Molecular Epidemiology of Infectious Diseases. ASM Press, Washington, D.C.

Carrington, M. and A.R. Hoelzel (Eds.). 2001. Molecular Epidemiology. Oxford University Press, Oxford, U.K.

Moon, G., M. Gould, et al. 2000. Epidemiology: An Introduction. Open University Press, Buckingham, U.K.

Schulte, P.A. and F.P. Perera (Eds.). 1993. Molecular Epidemiology. Principles and Practices. Academic Press, San Diego, CA.

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## Lectures schedule

Date	Lect.	Topic	Ref
Sept. 9	W 1	Course outline, evaluations, overview	
Sept. 11	F 2	<b>Part I. Basic concepts of host-parasite relationships</b>	
		1. Humans and the ecology of bacteria and viruses	
		2. Human diseases: some definitions	
Sept. 15	Tu 3		
Sept. 16	W 4		
Sept. 18	F 5	3. Some historical examples	
Sept. 22	Tu 6		
Sept. 23	W 7	4. Basic concepts in epidemiology	Chap. 1
Sept. 25	F 8		
Sept. 29	Tu 9	5. I. Classification of infectious agents	Chap. 2
Sept. 30	W 10	<b>MID-TERM EXAM 1 (25%)</b>	
Oct. 2	F 11	5. II. Classification of infectious agents: prokaryotes	Chap. 3
Oct. 6	Tu 12	5. III. Classification of infectious agents: viruses	Chap. 4
Oct. 7	W 13	6. Molecular basis of infection	Chap. 5
Oct. 9	F 14	7. Disease control: Vaccines	Chap. 6
		<b>Assignment Bonus: Critical review of scientific article</b>	
Oct. 13	Tu 15	8. Disease control: Antimicrobials	Chap. 7
Oct. 14	W 16	<b>Part II. Microorganisms and human diseases</b>	Chap. 8
		9. Disorders of immune system	
Oct. 16	F 17		
Oct. 20	Tu 18		
Oct. 21	W 19	10. Diseases of the urinary and reproductive system	Chap. 9
Oct. 23	F 20	<b>Assignment BONUS: Due date OCT. 23</b>	
Oct. 27	Tu 21		
Oct. 28	W 22	<b>MID-TERM EXAM 2 (30%)</b>	
Oct. 30	F 23	11. Diseases of the respiratory system	Chap. 10
Nov. 3	Tu 24	<b>Assignment : Case Study Report</b>	
Nov. 4	W 25		
Nov. 6	F 26	12. Diseases of the digestive system	Chap. 11
Nov. 10	Tu 27	<b>READING BREAK (no lecture)</b>	
Nov. 11	W 28	<b>REMEMBRANCE DAY (no lecture)</b>	
Nov. 13	F 29		
Nov. 17	Tu 30	13. Diseases of the skin and eye	Chap. 12
Nov. 18	W 31		
Nov. 20	F 32	<b>Assignment Case Study Report:Due date NOV. 20</b>	
Nov. 24	Tu 33	14. Diseases of the nervous system	Chap. 13
Nov. 25	W 34		
Nov. 27	F 35		
Dec. 1	Tu 36	15. Diseases of the cardiovascular system	Chap. 14
Dec. 2	W 37		
Dec. 4	F 38	Last Lecture	
Dec.		<b>FINAL EXAM (40%)</b>	

Chap. Refers to chapters in Custom Textbook

**NO CLASSES ON READING BREAK AND REMEMBRANCE DAY (NOV. 10 and 11)**

**THE DEPARTMENT OF BIOLOGY DOES NOT OFFER SUPPLEMENTAL FINAL EXAMS.**

**ABSENCE TO THE EXAMS FOR HEALTH PROBLEM WILL BE GRANTED ONLY WITH THE SUBMISSION OF A DOCTOR'S NOTE.**

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