BIOLOGY 459 (CRN 10419)
HUMAN MICROBIAL DISEASES:
MOLECULES TO COMMUNITIES
September – December 2017
COURSE OUTLINE

LECTURER:
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Lectures: Tu, Wed, Fri 12:30-13:20
Room: ECS 116

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.

An introduction to human infectious diseases and the biology and ecology of pathogenic bacteria and viruses. Basic principles of epidemiology of infectious diseases. Methods of control: antibiotics, antivirals and vaccines. Classification, pathogenicity, molecular diagnostic, epidemiology of various types of human infectious 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^+ (90%-100%), A (85-89.9%), A^- (80-84.9%), B^+ (77-79.9%), B (73-76.9%), B^- (70-72.9%), C^+ (65-69.9%), C (60-64.9%), D (50-59.9%), F (<50%)

TEXTBOOKS

Bramadat, P., M. Guay, J. Bettinger, R. Roy (Eds). 2017. Public Health in the Age of Anxiety. Religious and Cultural Roots of Vaccination Hesitancy in Canada. University of Toronto Press, Toronto. (PHAA in Lectures schedule)

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

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

Additional References

Tortora, G.J., B.R. Funke, C.L. Case. 2013. Microbiology: an Introduction. 11th 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. 13th 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. 6	W	1	Course outline, evaluations, overview	
Sept. 8	F	2	**Part I. Basic concepts of host-parasite relationships** 1. Humans and the ecology of bacteria and viruses	
Sept. 12	Tu	3		
Sept. 13	W	4	2. Human diseases: some definitions	
Sept. 15	F	5	3. Some historical examples	
Sept. 19	Tu	6	4. Basic concepts in epidemiology	Pearson 1
Sept. 20	W	7	5. I. Classification of infectious agents	Pearson 2
Sept. 22	F	8	5. II. Classification of infectious agents: prokaryotes	Pearson 3
Sept. 26	Tu	9	5. III. Classification of infectious agents: viruses	Pearson 4
Sept. 27	W	10		
Sept. 29	F	11	6. Molecular basis of infection	Pearson 5
Oct. 3	Tu	12	7. Disease control: Vaccines	Pearson 6
Oct. 4	W	13	**MID-TERM EXAM 1 (25%)**	
Oct. 6	F	14	**NO CLASS: Time for** Assignment Bonus: Critical review of scientific article (Due Date Oct. 20)	
Oct. 10	Tu	15	8. Disease control: Antimicrobials	Pearson 7
Oct. 11	W	16		
Oct. 13	F	17	**Part II. Microorganisms and human diseases** 9. Disorders of immune system	Pearson 8
Oct. 17	Tu	18	10. Epidemiologic trends in vaccine-preventable diseases	PHAA 8
Oct. 18	W	19	11. A portrait of vaccine hesitant Canadians	PHAA 6
Oct. 20	F	20	12. Learning from smallpox inoculation	PHAA 4
Oct. 24	Tu	21	**Assignment BONUS: Due date OCT. 20**	
Oct. 25	W	22	13. Crises of trust and truth: religion and vaccine **Bramadat: Guest lecture**	PHAA 2
Oct. 27	F	23	**Assignment : Case Study Report (Due date NOV. 21)**	
Oct. 31	Tu	24	14. Role of risk perception in vaccine hesitancy	PHAA 3
Nov. 1	W	25	Mathematics contribution to epidemiology **Guest Lecture: Pauline van den Driessche**	
Nov. 3	F	26	**MID-TERM EXAM 2 (30%)**	
Nov. 7	Tu	27	15. Canada's vaccine safety system	PHAA 9
Nov. 8	W	28	16. Diseases of the urinary and reproductive system	Pearson 9
Nov. 10	F	29	17. Diseases of the respiratory system	Pearson 10
Nov. 14	Tu	30	**REMEMBRANCE DAY (no lecture)**	
Nov. 15	W	31	**READING BREAK (no lecture)**	
Nov. 17	F	32	18. Diseases of the digestive system	Pearson 11
Nov. 21	Tu	33	**Assignment Case Study Report:Due date NOV. 21**	
Nov. 22	W	34		
Nov. 24	F	35	19. Diseases of the skin and eye	Pearson 12
Nov. 28	Tu	36	20. Diseases of the nervous system	Pearson 13
Nov. 29	W	37	21. Diseases of the cardiovascular system	Pearson 14
Dec. 1	F	38	Last Lecture	
Dec.			**FINAL EXAM (40%)**	

NO CLASS ON OCT. 6 (TIME FOR ASSIGNMENT)
NO CLASSES ON READING BREAK AND REMEMBRANCE DAY (NOV. 14 and 15)

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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