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BIOM 400.01: Medical Microbiology

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Syllabus

BIOM 400 - Medical Microbiology

Instructor: Amanda Brinkworth, Ph. D

This syllabus is tentative and subject to change.
Lectures: 8:10-9:00 MWF, ISB 110
Contact: amanda.brinkworth@mso.umt.edu
Office Hours: MWF 9:15-10:15, location TBA

Required Text: Jawetz, Melnitz, & Adelberg's Medical Microbiology, 26th ed.
Required: Clickers, regular access to Moodle

Course goals and expectations:
As future health scientists, you may be responsible for the prevention, diagnosis and treatment of infections. Your friends, family, and patients will look to you for guidance and knowledge regarding a variety of illnesses, many of these due to microbial pathogens. This course is designed to introduce you to the most common microbial pathogens and will prepare you for the microbiology portions of you pre-professional examinations. Upon completion of this course, you will be able to recall host defense systems, diseases, modes of transmission, virulence mechanisms, methods of treatment, and prevention methods for viral, bacterial, fungal and parasitic infectious disease agents.

Assignments:
Assignments in this course will involve reading and responding to the CDC's Morbidity and Mortality Weekly Reports (MMWR) and Science in the Media literature (topic reviews, media articles, and scientific publications). The reading materials and worksheets can be accessed through Moodle by Friday, and worksheets will be turned in at the beginning of class on Monday. Assignments are designed to develop your critical thinking skills in the context of infectious diseases and public health. Thoughtful completion of these assignments will provide you with the resources and skills to construct up-to-date and informed responses to inquiries about scientific topics with the public (e.g. friends, family, patients).

Optional reading and content:
Occasionally, links to videos and articles will be available through Moodle that will present the lecture material in a new context, but will not be tested directly.

Exams:
Exams will test your ability to associate microbial pathogens with mechanisms of virulence, manifestation of disease, transmission, diagnosis, and treatment. Exams may include a combination of multiple choice questions, diagram labeling, open-ended critical thinking questions, and MMWR-related questions. The exams will cover topics discussed in lecture

and covered in homework assignments. The textbook readings are highly recommended and will definitely provide a broader context for our lecture topics. You may have a single 3X5 index card of notes to be used during the exam.
Missed exams are inexcusable. Make-up exams will only be given under extenuating circumstances, and only when scheduled more than 1 week in advance.

Attendance and iClickers:
We will use iclickers during every class to assess lecture comprehension, and also to keep track of attendance. One missed lecture will be forgiven in the attendance grade. Please pick up a clicker and register it before Friday, Aug 29.

Grading:
Exam and assignment grades will not be rounded. Final grades will be rounded to the first decimal place. Exam scores will be adjusted to a minimum mean score of 80%, meaning that exam scores may be raised, but not lowered.

Attendance	5%
MMWR	5%
Science and the Media	10%
Exam 1	20%
Exam 2	20%
Exam 3	20%
Final Exam	20%
Total	**100%**

Final Grade Scale (percentage)

A- 89.5- 93.4	A 93.5-96.4	A+ 96.5-100	
B- 79.5 – 83.4	B 83.5-86.4	B+ 86.5-89.4	
C- 69.5 – 73.4	C 73.5-76.4	C+ 76.5-79.4	
D- 59.5 – 63.4	D 63.5-66.4	D+ 66.5-69.4	F <59.5

Extra credit:
Because much of this class involves memorization and association of microbes with specific characteristics, I encourage you to share your memorization tricks with the rest of the class through this extra credit opportunity. Mnemonic devices (e.g. word associations, memes, songs) must be submitted on Fridays at least 5 minutes before class. Mnemonic devices will be reviewed for a vote at the beginning of class, and the person who submitted the winning and second place mnemonics will receive 1 extra point to their FINAL GRADE, for a maximum of 2 points of extra credit by this method. Other extra credit opportunities may become available as the semester progresses.

Office hours and responding to emails:
Since I live in and work full-time outside of Missoula, I will be unable to meet with students in-person outside of the set office hours. ONLY if you are unable to attend one of these

sessions AND are unable to resolve your inquiries immediately before or after class, appointments can be made at least 5 days in advance to discuss your inquiries over Moodle or Skype. Similarly, I will not be able to respond immediately to email inquiries, but I will attempt to respond within 24 hours of reading the email.

	Date	Topic	*Assignments (due)*	Chapter
M	Aug 25	Syllabus, Introduction		1
W	Aug 27	Natural history of infectious agents		1
F	Aug 29	MMWRs & Emerging infectious diseases		
M	Sep 1	**Labor Day- NO CLASS**		
W	Sep 3	Innate Immune response	*Science in the media, MMWR*	8
F	Sep 5	Antibodies and Antigen processing		8
M	Sep 8	**NO CLASS**		
W	Sep 10	Humoral Immunity and Complement system		8
F	Sep 12	Adaptive response		8
M	Sep 15	Diagnostics	*Science in the media, MMWR*	3, 47
W	Sep 17	Prions		42
F	Sep 19	Exam Review		
M	Sep 22	**EXAM 1: Immunology, Diagnostics, Prions**		
W	Sep 24	Viruses and vectors		29, 30
F	Sep 26	DNA viruses		33-35
M	Sep 29	Variola major, HSV	*Science in the media, MMWR*	33-34
W	Oct 1	RNA viruses		40, 44
F	Oct 3	HIV		44
M	Oct 6	Ebola, MERS	*Science in the media, MMWR*	36
W	Oct 8	Viruses and cancer, Vaccines		43, 33
F	Oct 10	Exam Review		
M	Oct 13	**EXAM 2: Viruses and Vaccines**		

W	Oct 15	Microflora and commensal bacteria		10
F	Oct 17	Bacterial surfaces		2, 9, 30
M	Oct 20	Antibiotics	*Science in the media, MMWR*	4, 28
W	Oct 22	Enteric Gram (-) pathogens		15-17, 19
F	Oct 24	Intracellular Gram (-) pathogens		22, 26-27
M	Oct 27	Spirochetes and tick-borne pathogens	*Science in the media, MMWR*	24
W	Oct 29	Bacterial toxins		9, 30
F	Oct 31	*S. aureus* and nosocomial pathogens		13, 16
M	Nov 3	*C. difficile* and spore-forming bacteria	*Science in the media, MMWR*	11
W	Nov 5	Gram (+) non-spore-forming		12
F	Nov 7	*M. tuberculosis*, *S. pneumoniae* species		23, 14
M	Nov 10	Case studies	*Science in the media, MMWR*	47, 48
W	Nov 12	Microbes and biotechnology		7, 29
F	Nov 14	Exam review		
M	Nov 17	**EXAM 3 -Bacteria and Antibiotics**		
W	Nov 19	Fungi		45
F	Nov 21	Fungi/Helminths		45, 46
M	Nov 24	Protozoan parasites	*Science in the media, MMWR*	46
W	Nov 26	**Thanksgiving Break-NO CLASS**		
F	Nov 28	**Thanksgiving Break-NO CLASS**		
M	Dec 1	Malaria and Antiviral drugs	*Science in the media, MMWR*	46
W	Dec 3	Catch-up day- we will have class!		
F	Dec 5	Last Day of Class - Exam Review		
T	Dec 9	**FINAL EXAM: 8AM-10AM**		