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PHAR 329.01: Microbes and Medicines

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PHAR 329 (MICROBES and MEDICINE)

SPRING SEMESTER, 2022

Monday and Wednesday 8-8:50am, and Friday 8-9:50am

Skaggs 169

Instructors:

Travis Hughes, E-mail: travis.hughes@umontana.edu

Office Hours: Email me! When I can, I try to answer emails quickly. If needed we can set up a time to talk in person or over zoom. Also, I am in my office for a good part of the day most days... stop by to talk anytime my door is open.

Office – SB 478, Phone: 243-2750

Jenner Minto, E-mail: jenner.minto@mso.umt.edu

Office Hours: Email me! When I can, I try to answer emails quickly. Also, we can talk on the phone or over zoom, email me to set up a time to talk.

Office - SB 308, Phone: 243-4547

This class will require your active participation every class period during the scheduled time.

Exams and Grading (all Exams in UREY 101; Final is in SB169):

- First Exam (Feb 14, 5-6:30pm): 100 points
- Second Exam (March 7, 5-6:30pm): 100 points
- Third Exam (April 4, 5-6:30pm): 100 points
- Fourth Exam (April 25, 5-6:30pm): 100 points
- Final Exam (May 9, 8-10am): 100 points
- Friday quizzes (most Fridays at the start of class): 50 points
- Total Points: 550 A>92% A->90% B+>88% B>82% B->80% C+>78% C>72% C->70% D>65%

1. All exams will be in UREY 101, the Final Exam will be in Skaggs Bldg. 169.
2. All exams are in-person exams. All exams must be taken at scheduled times. If you have DSS accommodations let us know so that we can provide the accommodations (the DSS office is closed during our allotted exam times, so we will take care of the accommodations).
3. Instructor must be informed BEFORE missing a scheduled exam period for GOOD REASONS. Good reasons definitely include feeling sick. Do NOT come to the exam if you are feeling sick, we are in the middle of a pandemic! We will arrange for you to take the exam after you are feeling better, but remember, let us know before the exam.
4. We will have in-lecture quiz questions spread throughout each lecture: iClicker Reef app required for these questions. If you don't already have an account create an account at <https://www.iclicker.com/students> either via laptop or mobile app: search University of

Montana and add the “Microbes and Medicines 2022” class. If you get greater than or equal to 70% of these questions right then you will receive 5 points extra credit.

5. Corrections to exams or quizzes must be requested within 7 days after you are given the opportunity to review your answers.

Your mistakes in marking scantrons or in the iClicker reef app can **NOT** be corrected. If you are having technical difficulties with the iClicker reef app, then let us know so we can help you get it worked out.

6. We will have Quizzes every Friday that does NOT directly precede a Monday Exam (11 quizzes total).
7. You can receive 5.5 total extra credit points at the end of the semester if you fulfill two requirements: 1) you create and submit an original quiz question based on the previous weeks (Friday, Monday, and Wednesday) material for at least 7 of the 11 Friday quizzes, and 2) you average >70% on the in-class i-clicker questions that are sprinkled throughout the lectures. The quiz questions you create can be turned into Moodle by Thursday afternoon at 5pm.

COVID-19 related expectations: It is expected that students will follow all outlined precautions to prevent transmission of COVID-19. See

https://www.umt.edu/coronavirus/communications/jan_6_2022_comms.php

For UM procedures if you are feeling sick, have tested positive for COVID, or have been a close contact.

1. Students experiencing symptoms consistent with COVID-19 (including fever or chills, cough, shortness of breath, fatigue, muscle or body aches, loss of taste or smell, sore throat, runny nose, nausea, vomiting, or diarrhea) should not attend class or exams. If you are experiencing any of these symptoms, please email Travis Hughes (travis.hughes@umontana.edu) and Jenner Minto (jenner.minto@umontana.edu) **before** class or exam and do not come to class. You will be allowed to make up the exam at another time.
2. Please do not come to class if you are waiting on COVID-19 test results. We cannot require you to tell us you have COVID-19 or are waiting on a test result, but if you choose to share such information, we will not share it with others.
3. If you question whether or not you should come to class or an exam for any health-related reason, please contact us before class or the exam and we will help you make that decision.
4. Masks will be worn during class and exams, and must completely cover the nose and mouth at all times.
5. Students will be required to sit in designated seats for contact tracing purposes.
6. Students are discouraged from congregating outside the classroom before and after exams.
7. Food and beverages will not be allowed in exam rooms.
8. If you are sick or displaying symptoms, please contact the Curry Health Center at (406) 243-4330

Learning objectives:

- 1) Understand the microbes and medicines world

- a) introduction to microbes
 - b) introduction to the drugs
- 2) Learn the language of the most important concepts, the microbes and the medicines
- a) important bugs and drugs
 - i) how bugs are classified and talked about
 - (1) what possible drugs can be used based on spectrum of activity
 - ii) where do bugs cause problems and what kinds of problems do bugs cause
 - (1) what possible drugs can be used based on location and disease
- 3) Learn to apply your knowledge to patient care.
- a) identify the organisms that could cause a disease or symptoms
 - b) identify the best or potential treatment option(s) given clinical microbiology results
 - c) identify the best or potential treatment option(s) given patient presentation

This is a *planned* class schedule (The exact dates of discussion for each topic will change some as we move through the semester)

Month	day	day	topic
	Wed.	19	Science of Microbiology
	Friday	21	Science of Microbiology
	Friday	21	Science of Microbiology
January	Monday	24	Human Microbiome/opportunistic pathogens
	Wed.	26	Human Microbiome/opportunistic pathogens
	Friday	28	How to grow, kill and visualize microbes
	Friday	28	Cell structure
	Monday	31	Cell structure
	Wed.	2	Bacterial classification and identification
	Friday	4	Bacterial classification and identification
	Friday	4	Vaccines
	Monday	7	Introduction to Antibiotics
	Wed.	9	Intro to antibiotics time dependent antibiotics
February			

	Friday	11	conc dependent and mnemonic activity β lactam antibiotics
	Friday	11	conc dependent and mnemonic activity β lactam antibiotics
	Monday	14	Penicillins
	Wed.	16	Cephalosporins
	Friday	18	Carbapenems/Monobactam
	Friday	18	Activities about Cephalosporins/penicillin/Carbapenems start of Immune response
	Monday	21	Holiday
	Wed.	23	Immune response to infection
	Friday	25	Immune response/Bacterial metabolism/
	Friday	25	genetics/the origin of resistance
<div style="border: 1px solid black; width: 100px; height: 20px; margin-bottom: 5px;"></div>	Monday	28	genetics/the origin of resistance
	Wed.	2	Pathogenesis and virulence
	Friday	4	buffer day
	Friday	4	Ribosomal antibiotics
	Monday	7	Ribosomal antibiotics
	Wed.	9	Ribosomal antibiotics Sanford guide activity
	Friday	11	Ribosomal antibiotics crossword puzzle in class activity
March	Friday	11	fluoroquinolones Miscellaneous antibiotics
	Monday	14	Miscellaneous antibiotics
	Wed.	16	anti-tuberculosis antimicrobials
	Friday	18	anti-tuberculosis antimicrobials
	Friday	18	Skin and soft tissue infections (common microbial causes)
	Spring break		Spring break

	Monday	28	Streptococcus/SSTI
	Wed.	30	Case studies Skin and soft tissue infections
	Friday	1	ESKAPE pathogens
	Friday	1	Gastrointestinal infections and case study (cause and cure)
	Monday	4	LRI
	Wed.	6	LRI/UTI
	Friday	8	UTI
	Friday	8	UTI coverage activity/
	Monday	11	Upper respiratory infections/ear infections
	Wed.	13	endocarditis/Intra-abdominal
	Friday	15	Intra-abdominal/ Bacterial STIs/Oral infections
April	Friday	15	Bone and joint infections/CNS
	Monday	18	CNS
	Wed.	20	General Virology and Viral pathogenesis (SARS-CoV-2 and influenza used as examples)
	Friday	22	General Virology and Viral pathogenesis
	Friday	22	Viral pathogenesis Influenza/ Herpes-Hep
	Monday	25	HIV
	Wed.	27	Herpes/Hepatitis Herpes treatment and Hep C treatment
	Friday	29	Hep A,B and then Influenza
	Friday	29	Medical Mycology
	Monday	2	Med Mycology/antifungals
	Wed.	4	antifungals
	Friday	6	antifungals
	Friday	6	Covid treatment
May			

Textbooks:

Antimicrobial textbook:

Title: The Sanford Guide to Antimicrobial Therapy

51st edition is the latest edition. The 51st is preferred, you will use this through the end of your PharmD. Either the paper version or online version are OK. Pocket, Spiral and Library Edition are all acceptable and all contain the same information, they are just different sizes.

Medical Microbiology textbook:

Title: Medical Microbiology,

Authors: Patrick Murray, Ken Rosenthal, and Michael Pfaller

I will be using the 8th edition, you can get a newer version if you would like. E-book or paperback are both fine to use. Purchase of a new paperback usually allows access to the E-book. You should use this book to better understand the material in the slides. The 8th edition chapters covered in each slide deck are noted on the first page of the slide deck.

Other textbooks that may be useful as additional references (NOTE: you are not required to buy or read these):

Clinical microbiology made ridiculously simple (Gladwin, Trattler, Mahan)

Antibiotics simplified (Jason C. Gallagher and Conan MacDougall)

Expectations:

1. It is the student's responsibility and obligation to attend and participate in class.
2. Class civility: Questions and relevant discussion are encouraged. A student significantly disrupting the course may result in a Professionalism Violation. The [Professionalism Policy](#) for the Skaggs School of Pharmacy is available online (<http://health.umt.edu/pharmacy/Current%20Students/Documents%20and%20Links.php>).
3. Course tardiness: You are expected to enter the Zoom session on time. This class will be interactive and your participation is expected every day. In the event you know you will be arriving to class late (ex. childcare or transportation issues), please notify the course coordinator(s) in advance. Excessive tardiness will result in a professionalism violation.
4. All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. Looking at other student's exams will not be tolerated. All students need to be familiar with the Pharmacy Student Conduct Code in the Doctor of Pharmacy Student Handbook. (<http://health.umt.edu/pharmacy/Current%20Students/student-handbook-2020-21.pdf#Student%20Handbook%202020-2021>).

5. Students with disabilities may request reasonable accommodations by contacting the course coordinator. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). “Reasonable” means the University permits no fundamental alterations of academic standards or retroactive modifications. For more information, consult the UM Disability Services for Students website (<https://www.umt.edu/disability-services/Students/default.php>).

6. Classroom lectures are the intellectual property of the instructor, and recording of lectures is allowed solely for a student’s academic benefit. Montana Law requires the instructor to inform the other students in the class that audio or video recordings will be made of classroom activity prior to any recording taking place. If you want to record tell the instructor.