

Syllabus

Medicinal Microbiology and Chemistry

Faculty contact information

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Introduction

Welcome to Medicinal Chemistry and Microbiology and congratulations on finishing the majority of your major. In this class, you will learn about disease and treatment from the perspectives of microbiology and organic chemistry. During the semester, you will apply your knowledge of these subjects to interdisciplinary problems in medicinal chemistry, mechanisms of disease and development of drugs to treat those diseases.

Special needs

If you have any special needs such as a documented learning disability or other situation that limits your access or ability to participate in class or lab, please discuss the situation with me as soon as possible so we can make appropriate arrangements. Assistance with accommodations can also be found at the Office of Student Life, room 111 Reid Centennial Hall.

Email contact and the website

Your WarriorWeb e-mail account is the official method of communication between the college and yourself and so you should check your account daily. If you have trouble accessing your account, make sure you work out the problems as soon as you can by calling or stopping by the computer help desk (located at SGC B102 or phone 792-2231).

Our class does have a website. At the website, you can find this syllabus and handouts, as well as links to sites that you might find interesting or helpful

Assignments

Attendance and Participation

We meet twice a week for an hour and a half for lectures and activities led by both instructors.

Tests and quizzes

There will be two exams this semester. Expect to encounter questions that challenge you to solve new problems on these exams. Quizzes, on the

other hand, will test basic knowledge. There will be five such quizzes lasting about fifteen minutes each.

Presentation and paper

In groups, you will choose a disease and treatment to present to the class. The presentation and the accompanying paper will describe the organism, the mechanism of disease, a history of the development of treatment and the mechanism of action of that treatment.

Summary of grading

Participation class	20%
Tests (2)	25%
Quizzes (5)	25%
Presentation	15%
Paper	15%

Grading scale

93-100%	A	83-86%	B	73-76%	C	60-66%	D
90-92%	A-	80-82%	B-	70-72%	C-	<60%	F
87-89%	B+	77-79%	C+	67-69%	D+		

Texts

- Patrick, An Introduction to Medicinal Chemistry 3rd ed., Oxford University Press, 2005.

Timeline

Week	Dr. Hornby will lecture on...	Dr. Jameton will lecture on...
1 - 3	Introduction – history of antimicrobials with a focus on how understanding microbial physiology is necessary for drug design and general considerations in drug design (solubility, selectivity, stability, toxicity)	
	Bacteria – G+/G-	History of antimicrobial drug discovery and modern design
	Modes of resistance	Modes of action of different types of drugs
4-5	Viruses	
	Overview of DNA/RNA/retro	Review of biomolecular structure
		Drug screening in development
	DNA viruses: HPV, smallpox, herpes, HepB	Acyclovir structure and mechanism

6-7	RNA viruses: Rotavirus, Norwalk, SARS, etc	
8-9	Retroviruses: HIV	Drugs as protein inhibitors
		Rational drug design
		Protease inhibitors structure and mechanism
10-12	Fungi	
	Systemics, etc	Issues in drug delivery
	Candida, Histoplasma, Tricophyton	Fluconazole structure and mechanism
13-14	Sporozoan protists	
	Intro to protists	Ethics and drug development
	Plasmodium spp.	Quinolines, antifolates, endoperoxides
15	Review	