

## Integrated Pharmacotherapy 2: Infectious Diseases

### PHAR 7582

Fall Semester 2022

#### Course Description

This integrated pharmacy course focuses on the application of skills and resources needed for pharmacists to guide patients' infectious-related needs.

#### Additional Course Information

This course will integrate clinical microbiology, the pharmacology and medicinal chemistry of antimicrobial agents, and the epidemiology and pathophysiology of various bacterial, viral, fungal and parasitic infections. The therapeutic application of anti-infective agents for the treatment and prophylaxis of infectious disease will be discussed, along with the dosing, adverse effects, drug interactions, and clinical monitoring parameters to promote their cost-effective, safe, and appropriate use.

#### Course Credit

5 credit hours

#### Class Meeting Days, Time & Location

Monday: 2:00pm – 4:00pm; W.T. Brookshire Hall, Room 136

Wednesday: 2:00pm – 5:00pm; W.T. Brookshire Hall, Room 136

#### Course Coordinator

Cole Wilder, Pharm.D., BCPS, BCCCP

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Office hours: Monday: 4:00pm – 5:00pm; Wednesday: 12:00pm – 2:00pm; other times by appointment

Preferred method of contact: E-Mail

#### Fisch College of Pharmacy (FCOP) and UT Tyler Policies

This is part 1 of the syllabus. Part 2 contains UT Tyler and the FCOP course policies and procedures. These are available as a PDF at <https://www.uttyler.edu/pharmacy/academic-affairs/files/fcop-syllabus-policies.pdf>.

#### Required Materials

Most course required materials are available through the Robert R. Muntz Library. These materials are available either online\* (<http://library.uttyler.edu/>) or on reserve†.

1. \*Jawetz, Melnick, & Adelberg's Medical Microbiology, 28<sup>th</sup> Edition. Riedel S, Hobden JA, Miller S, *et al.* eds. McGraw-Hill, 2019. Available via *AccessPharmacy*®
2. \*Basic and Clinical Pharmacology, 14<sup>th</sup> Edition. Katzung BG. ed. McGraw-Hill, 2017. Available via *AccessPharmacy*®
3. \*Principles of Pharmacology: The Pathophysiologic Basis of Drug Therapy Fourth Edition, 4<sup>th</sup> Edition. Golan DE, Armstrong EJ, Armstrong AW. eds. Wolters Kluwer, 2017. Available via *LWW Health Library*®
4. \*Antibiotic Basics for Clinicians, 3<sup>rd</sup> Edition. Houser AR. ed. Wolters Kluwer, 2019. ISBN: 978-1-49638-448-5. Available via *LWW Health Library*®
5. \*Pharmacotherapy: A Pathophysiologic Approach, 11<sup>th</sup> Edition. DiPiro JT, Yee GC, Posey LM, *et al.* eds. McGraw-Hill, 2020. Available via *AccessPharmacy*®
6. \*Basic Concepts in Pharmacology: What You Need to Know for Each Drug Class, 5<sup>th</sup> Edition. Stringer JL. McGraw-Hill, 2017. Available via *AccessPharmacy*®

- \*Applied Therapeutics: The Clinical Use of Drugs, 11<sup>th</sup> Edition. Zeind CS, Carvalho MG. eds. Wolters Kluwer, 2018. Available via *LWW Health Library*<sup>®</sup>
- An Introduction to Medicinal Chemistry, 6<sup>th</sup> Edition. Graham Patrick. Oxford University Press, 2017. ISBN: 978-0-19874-969-1
- Other required materials will be posted on the classes' Canvas site. The site address is: [uttyler.edu/canvas](http://uttyler.edu/canvas).

### Recommended Materials

Most course recommended materials are on reserve† at the Robert R. Muntz Library.

- †Basic Skills in Interpreting Laboratory Data, 6<sup>th</sup> Edition. Lee M. ed. American Society of Health-System Pharmacist, 2017. ISBN: 978-1-58528-343-9.
- The Sanford Guide to Antimicrobial Therapy 2022, 52<sup>nd</sup> Edition. Gilbert DN, Chambers HF, Saag MS, *et al.* eds. Antimicrobial Therapy, Inc, 2020. ISBN: 978-1-944272-21-0.

### Course Format

The course may include, but are not limited to, the following activities:

- Independent study of selected readings
- Individual active learning strategies:
  - Individual readiness assessment tests (iRATs)
  - Individual application of content and concepts
  - Individual presentation of content and concepts
  - SOAP note(s)
- Team-based active learning strategies:
  - Team readiness assessment tests (tRATs)
  - Team application of content and concepts
  - Team presentation of content and concepts
  - Team project(s)
  - SOAP note(s)
- Lecture
- Educational video clips (online and in class)
- Independent preparation of reflection papers

### Course Learning Outcomes (CLOs)

CLOs	PLO(s) Assessed for this CLO	EPAs	Assessment Methods	Grading Method	ACPE Std. 11 & 12
1. Identify clinically relevant pathogens involved in the etiology of infectious diseases.	1	1.1, 1.2	1, 2	ES	/
2. Recognize the clinical presentation and identify distinguishing pathophysiologic features of selected infectious diseases.	1, 6	1.1, 1.2, 3.1	1, 2	ES	4
3. Identify antimicrobial agents and their distinguishing characteristics, including mechanisms of action, spectrum of activity, drug interactions, patient counseling points, and adverse effects.	1, 6, 7	1.2, 1.3, 3.2, 3.3, 4.1	1, 2, 3	ES, RUB	/
4. Formulate appropriate antimicrobial regimens for prophylactic, empiric, and definitive therapy for selected infectious diseases.	1, 2, 6	1.3, 1.4, 4.2	1, 2	ES	1, 4
5. Determine the appropriateness of antimicrobial therapy and recommend modification to therapeutic regimens based on disease state criteria and/or patient-specific parameters.	1, 2, 6	1.2, 1.3, 1.4, 1.5, 3.2, 3.3, 4.2	1, 2	ES	1, 4

## Course Assessment Methods

	Assessment Method	Description
1	Final Exam Multiple Choice or Multiple Selection Question(s)	<i>Standard MCQ and Select All That Apply questions.</i>
2	Final Exam Open Ended Question(s)	<i>Constructed-Response/Fill-in-the-Blank/Matching questions, Short-Answer questions, Hot Spot questions.</i>
3	Skills Assessment	<i>Rubric-based assessments on patient counseling.</i>

## Grading Policy & Grade Calculation

Grades will be determined based on evaluation of individual and team readiness assessment tests (iRATs, tRATs), individual and team cumulative assessment tests (iCATs, tCATs), midterm examinations, final written examinations, skills assessments, graded application assignments, participation in team-based projects, peer evaluations and other assessment methods that may include, but not limited to, Objective Structured Clinical Examinations (OSCE). Examinations, iRATs/tRATs and iCATs may consist of, but not limited to, multiple-choice, true/false, fill in the blank, short-answer, essay, and problem-based questions. **Backwards navigation will not be available on summative assessments (e.g. iCATs and Final Examination) administered via ExamSoft.**

During the time the course is in progress, students whose cumulative course percentage falls below 70.0% may receive an academic alert and be subject to periodic course content review in special sessions with the course instructor(s). The student's faculty advisor may receive an academic alert to act upon on the student's behalf.

All examinations, tests, and assignments, including the final examination, may be **cumulative**. Students are responsible for material presented during the prior courses. The grading scale for all graded material is below. The final course grade will be assigned according to the calculated percentage and the **percentages will not be rounded upward or downward**. For additional information, see examination/assessment policy below.

### Standard Grade Calculation\*

<b>Individual Component</b>	<b>95%</b>
iRATs	10%
Individual Applications/Activities (iAPPs)	5%
Unit 1 Assessment (iCAT)	18%
Unit 2 Assessment (iCAT)	20%
Unit 3 Assessment (iCAT)	12%
Cumulative Final Examination	30%
<b>Team Component</b>	<b>5%</b>
tRATs/Team Applications (tAPPs)	5%
<b>Total</b>	<b>100%</b>

**\*The final course letter grade will be determined according to the following grading scheme:**

A	90 - 100 %
B	80 - 89.999 %
C	70 - 79.999 %
D	65.0 - 69.999 %
F	< 65.0 %

**PHAR 7582 Course Schedule**  
Fall Semester 2022

Week	Day	Date	Time	Topic	Unit	Faculty	CLO	WSOP Category	Disease State	
<b>Unit I: Clinical Microbiology and Pharmacology</b>										
1	Mon	8/22/22	2:00pm	Course Overview	I	Wilder	/	/	/	
			3:00pm	Infectious Disease Introduction and Terminology		Wilder	2	/	/	
	Wed	8/24/22	2:00pm	*Clinical Microbiology: Bacteriology		Wilder	2	/	Clinical Chemistry	
			3:00pm	Clinical Microbiology: Bacteriology		Wilder	1	/	Medical Microbiology	
2	Mon	8/29/22	2:00pm	*Clinical Microbiology: Clinically Important Bacteria		Wilder	1	/	Medical Microbiology	
			3:00pm	Clinical Microbiology: Clinically Important Bacteria		Wilder	1	/	Medical Microbiology	
	Wed	8/31/22	2:00pm	*Antimicrobial Pharmacotherapy: Cell Wall Synthesis Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology	
			3:00pm	Antimicrobial Pharmacotherapy: Cell Wall Synthesis Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology	
			4:00pm	Antimicrobial Pharmacotherapy: Cell Wall Synthesis Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology	
			2:00pm	*Antimicrobial Pharmacotherapy: Protein Synthesis Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology	
3	Wed	9/7/22	3:00pm	Antimicrobial Pharmacotherapy: Protein Synthesis Inhibitors	Wilder	3	S15.01, S15.16	Pharmacology		
			4:00pm	Antimicrobial Pharmacotherapy: Protein Synthesis Inhibitors	Wilder	3	S15.01, S15.16	Pharmacology		
			Fri†	9/9/2022†	2:00pm†	*Antimicrobial Pharmacotherapy: DNA Synthesis & Replication Inhibitors	Wilder	3	S15.01, S15.16	Pharmacology
4	Mon	9/12/22	3:00pm†	Antimicrobial Pharmacotherapy: DNA Synthesis & Replication Inhibitors	Wilder	3	S15.01, S15.16	Pharmacology		
			2:00pm	*Antimicrobial Medicinal Chemistry: Cell Wall Synthesis Inhibitors	Adbelaziz	3	S15.01, S15.16	Medicinal Chemistry		
	Wed	9/14/22	3:00pm	Antimicrobial Medicinal Chemistry: Cell Wall Synthesis Inhibitors	Adbelaziz	3	S15.01, S15.16	Medicinal Chemistry		
			2:00pm	*Antimicrobial Medicinal Chemistry: Protein Synthesis Inhibitors	Adbelaziz	3	S15.01, S15.16	Medicinal Chemistry		
5	Mon	9/19/22	3:00pm	Antimicrobial Medicinal Chemistry: Protein Synthesis Inhibitors	Adbelaziz	3	S15.01, S15.16	Medicinal Chemistry		
			4:00pm	*Antimicrobial Medicinal Chemistry: DNA Synthesis & Replication Inhibitors	Adbelaziz	3	S15.01, S15.16	Medicinal Chemistry		
	<b>UNIT I ASSESSMENT (iCAT)</b>									
	<b>Unit II: Bacterial Infections</b>									
	Wed	9/21/22	2:00pm	*Antimicrobial Regimen Selection	Wilder	4, 5	S15.16	Medical Microbiology		
			3:00pm	Antimicrobial Regimen Selection	Wilder	4, 5	S15.16	Medical Microbiology		
			4:00pm	Antimicrobial Regimen Selection	Wilder	4, 5	S15.16	Medical Microbiology		
	Mon	9/26/22	2:00pm	Antimicrobial Stewardship	Wilder	5	S15.17	Pharmacotherapy		
			3:00pm	*Antimicrobial Prophylaxis in Surgery/Surgical Site Infections	Wilder	1, 2, 4	S15.20	Pharmacotherapy		
	Wed	9/28/22	2:00pm	*Skin and Soft Tissue Infections	Smith	1, 2, 4	S15.06	Pharmacotherapy		
3:00pm			Skin and Soft Tissue Infections	Smith	1, 2, 4	S15.06	Pharmacotherapy			
4:00pm			*Bone and Joint Infections	Smith	1, 2, 4	S15.11	Pharmacotherapy			
Mon	10/3/22	2:00pm	*Urinary Tract Infections	Smith	1, 2, 4	S15.09A/B	Pharmacotherapy			
		3:00pm	Prostatitis	Smith	1, 2, 4	S15.27	Pharmacotherapy			
Wed	10/5/22	2:00pm	*Clostridioides difficile Infection	Lee	1, 2, 4	S15.23	Pharmacotherapy			
		3:00pm	Gastrointestinal and Intra-Abdominal Infections	Lee	1, 2, 4	S15.08, S15.25	Pharmacotherapy			
		4:00pm	Gastrointestinal and Intra-Abdominal Infections	Lee	1, 2, 5	S15.08, S15.26	Pharmacotherapy			
Mon	10/10/22	2:00pm	*Sexually Transmitted Infections	Wilder	1, 2, 4	S15.10	Pharmacotherapy			
		3:00pm	Sexually Transmitted Infections	Wilder	1, 2, 4	S15.10	Pharmacotherapy			
Wed	10/12/22	2:00pm	*Infective Endocarditis/Central Nervous System Infections	Wilder	1, 2, 4	S15.26, S15.02	Pharmacotherapy			
		3:00pm	Infective Endocarditis/Central Nervous System Infections	Wilder	1, 2, 4	S15.26, S15.02	Pharmacotherapy			
		4:00pm	Infective Endocarditis/Central Nervous System Infections	Wilder	1, 2, 4	S15.26, S15.02	Pharmacotherapy			
Mon	10/17/22	2:00pm	*Upper Respiratory Tract Infections	Yang	1, 2, 4	S15.03	Pharmacotherapy			
		3:00pm	Upper Respiratory Tract Infections	Yang	1, 2, 4	S15.03	Pharmacotherapy			
Wed	10/19/22	2:00pm	*Lower Respiratory Tract Infections	Yang	1, 2, 4	S15.04	Pharmacotherapy			
		3:00pm	Lower Respiratory Tract Infections	Yang	1, 2, 4	S15.04	Pharmacotherapy			
		4:00pm	Lower Respiratory Tract Infections	Yang	1, 2, 4	S15.04	Pharmacotherapy			
10	Mon	10/24/22	2:00pm	<b>UNIT II ASSESSMENT (iCAT)</b>						
			3:00pm	<b>UNIT II ASSESSMENT (iCAT)</b>						

Week	Day	Date	Time	Topic	Unit	Faculty	CLO	WSOP Category	Disease State
<b>UNIT III: Viral, Fungal, Parasitic, and Mycobacterial Infections</b>									
10	Wed	10/26/22	2:00pm	Clinical Microbiology: Virology	III	Wilder	1	/	Medical Microbiology
			3:00pm	*Antimicrobial Pharmacotherapy: Antiviral/Antiretroviral Agents		Wilder	3	S15.01	Pharmacology
			4:00pm	Antimicrobial Pharmacotherapy: Antiviral/Antiretroviral Agents		Wilder	3	S15.01	Pharmacology
11	Mon	10/31/22	2:00pm	*Antimicrobial Medicinal Chemistry: Antiviral/Antiretroviral Agents		Adbelaziz	3	S15.01	Medicinal Chemistry
			3:00pm	Antimicrobial Medicinal Chemistry: Antimycobacterial Agents		Adbelaziz	3	S15.01	Medicinal Chemistry
11	Wed	11/2/22	2:00pm	*Antimicrobial Pharmacotherapy: Antiviral Agents--Influenza		Yang	3	S15.01	Pharmacology
			3:00pm	*Influenza		Yang	1, 2, 4	S15.05	Pharmacotherapy
			4:00pm	Influenza		Yang	1, 2, 4	S15.05	Pharmacotherapy
12	Mon	11/7/22	2:00pm	Clinical Microbiology: Mycology		Wilder	1	/	Medical Microbiology
			3:00pm	*Antimicrobial Pharmacotherapy: Antifungal Agents		Wilder	3	S15.01	Pharmacology
	Wed	11/9/22	2:00pm	Antimicrobial Pharmacotherapy: Antifungal Agents	Wilder	3	S15.01	Pharmacology	
			3:00pm	*Antimicrobial Medicinal Chemistry: Antifungal Agents	Adbelaziz	3	S15.01	Medicinal Chemistry	
			4:00pm	Antimicrobial Medicinal Chemistry: Antifungal Agents	Adbelaziz	3	S15.01	Medicinal Chemistry	
13	Mon	11/14/22	2:00pm	<b>UNIT III ASSESSMENT (iCAT)</b>					
			3:00pm						
	Wed	11/16/22	2:00pm	*Superficial Fungal Infections	III ‡	Wilder	1, 2, 4	S15.13	Pharmacotherapy
			3:00pm	Superficial Fungal Infections		Wilder	1, 2, 4	S15.13	Pharmacotherapy
4:00pm	Superficial Fungal Infections	Wilder	1, 2, 5	S15.14		Pharmacotherapy			
14	Mon	11/21/22	2:00pm	<b>Thanksgiving Holiday: NO CLASSES</b>					
			3:00pm						
	Wed	11/23/22	2:00pm						
			3:00pm						
		4:00pm							
15	Mon	11/28/22	2:00pm	*Parasitic Infections	III ‡	Wilder	1, 2, 4	S15.18	Pharmacotherapy
			3:00pm	Travel Medicine and Vector-Borne Diseases		Wilder	1, 2, 4	S15.28, S15.29	Pharmacotherapy
	Wed	11/30/22	2:00pm	Clinical Microbiology: Mycobacteria		Wilder	1	/	Medical Microbiology
			3:00pm	*Antimicrobial Pharmacotherapy: Antimycobacterial Agents		Wilder	3	S15.071	Pharmacology
			4:00pm	Tuberculosis		Wilder	1, 2, 4	S15.07	Pharmacotherapy
16	Fri	12/9/22	9:00am	<b>CUMULATIVE FINAL EXAMINATION ‡</b>					
			10:00am						
			11:00am						

Please note that dates, topics, and assignments are subject to change. In the event of a change, you will be given ample notification of the change.

Asterisk (\*) denotes scheduled dates and topics for iRAT/tRAT; please note, iRATs/tRATs can occur at any time at the discretion of the course faculty.

Dagger (†) denotes scheduled dates and times for topics rescheduled due to Labor Day Holiday.

Double dagger (‡) denotes topics and material from Unit III which will be formatively assessed during the course final examination.