

Integrated Pharmacotherapy II: Infectious Diseases

PHAR 7582

Fall Semester 2021

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

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

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

Course Coordinator

Cole Wilder, Pharm.D., BCPS, BCCCP

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Office hours: Wednesday: 4:00pm – 5:00pm; Thursday: 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, 28th Edition. Riedel S, Hobden JA, Miller S, *et al.* eds. McGraw-Hill, 2019. Available via *AccessPharmacy*[®]
2. *Basic and Clinical Pharmacology, 14th Edition. Katzung BG. ed. McGraw-Hill, 2017. Available via *AccessPharmacy*[®]
3. *Principles of Pharmacology: The Pathophysiologic Basis of Drug Therapy Fourth Edition, 4th Edition. Golan DE, Armstrong EJ, Armstrong AW. eds. Wolters Kluwer, 2017. Available via *LWW Health Library*[®]
4. *Antibiotic Basics for Clinicians, 3rd Edition. Houser AR. ed. Wolters Kluwer, 2019. ISBN: 978-1-49638-448-5. Available via *LWW Health Library*[®]
5. *Pharmacotherapy: A Pathophysiologic Approach, 11th 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, 5th Edition. Stringer JL. McGraw-Hill, 2017. Available via *AccessPharmacy*[®]

- *Applied Therapeutics: The Clinical Use of Drugs, 11th Edition. Zeind CS, Carvalho MG. eds. Wolters Kluwer, 2018. Available via *LWW Health Library*[®]
- An Introduction to Medicinal Chemistry, 6th 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.

Recommended Materials

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

- *Basic Skills in Interpreting Laboratory Data, 6th Edition. Lee M. ed. American Society of Health-System Pharmacist, 2017. ISBN: 978-1-58528-343-9.
- The Sanford Guide to Antimicrobial Therapy, 51st Edition. Gilbert DN, Chambers HF, Saag MS, *et al.* eds. Antimicrobial Therapy, Inc, 2020. ISBN: 978-1-944272-18-0.

Course Format

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

- Independent study of selected readings
- Individual readiness assessment tests (iRATs)
- Team-based learning, 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
- Active learning
- Case studies** (see below)
- 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	ES	/
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>

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*

Individual Component	95%
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%
Team Component	5%
tRATs/Team Application	5%
Total	100%

*****Failure to attend the Case Studies session assigned to this course will result in an 2% deduction from your final course grade*****

***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 %

Case Studies

Case Studies is a longitudinal supplement intended to reinforce and integrate concepts and skills from the P2 fall curriculum. **Content and concepts from Case Studies will be integrated into summative exams for the P2 fall courses.**

Case Studies Format

Case days may include, but are not limited to, the following activities:

1. Guided discussions
2. Individual and team active learning strategies
 - a. Individual and team case application of content and concepts
 - b. Individual and team case presentation of content and concepts
 - c. Individual and team SOAP note(s)

Case Studies Expectations

Attendance and full participation are a student obligation and expectation. Failure to attend each Case Studies session will result in an **2% deduction from the final course grade to which the session is assigned**. To ensure equitable distribution among P2 fall courses, each session will have an "Assigned Course" that will house the 2% deduction in the final course grade in the event of an unapproved absence. Failure to attend all Case Studies sessions would result in a 2% deduction from the final grade of each of the following courses: PHAR 7193, 7302, 7481, 7582, and 7219.

At the discretion of the session's assigned course coordinator, absences from a case session may be either approved or unapproved. Students are expected to notify the session's assigned course coordinator *as soon as possible, and no later than 9 AM the morning of the requested absence, with supporting documentation of the absence provided within 3 days of the absence per the College of Pharmacy Policies available in Part 2 of the Syllabus.*

Example. Unapproved absences for sessions 2 and 4, would result in 2% final course grade deduction for both PHAR 7302 and PHAR 7582. At the end of the semester if the student's course grades for PHAR 7302 were 91% and 71% respectively, their final grade would be reduced to 89% and 69% respectively because of their Case Studies' absences.

Case Study Schedule

Case Studies will be held over five sessions on Fridays from 2-5 PM. Although each session's attendance deduction is assigned to a specific course, case content is not limited to that course and will be integrated into summative exams for the P2 fall courses.

P2 Fall 2021 Case Study Schedule					
Session	Date	Assigned Course	Assigned Course Coordinator	Topic	Instructors
1	9/17	PHAR 7193	Dr. Vega	Case Studies Introduction Case Modeling	Drs. Brazill and Rice
2	10/1	PHAR 7302	Dr. Brunner	Case 1	TBD
3	10/8	PHAR 7481	Dr. Dunn	Case 1	TBD
4	11/5	PHAR 7582	Dr. Wilder	Case 2	TBD
5	11/19	PHAR 7219	Dr. Smith	Case 2 Individual Presentation	TBD

PHAR 7582 Course Schedule
Fall Semester 2021

Week	Day	Date	Time	Topic	Unit	Faculty	CLO	WSOP Category	Disease State		
Unit I: Clinical Microbiology and Pharmacology											
1	Wed	8/25/21	2:00pm	Course Overview	/	Wilder	/	/	/		
			3:00pm	Infectious Disease Introduction and Terminology		Wilder	2	/	/		
	Thu	8/26/21	2:00pm	*Clinical Microbiology: Bacteriology		Wilder	2	/	Clinical Chemistry		
			3:00pm	Clinical Microbiology: Bacteriology		Wilder	1	/	Medical Microbiology		
2	Wed	9/1/21	4:00pm	Clinical Microbiology: Bacteriology		Wilder	1	/	Medical Microbiology		
			2:00pm	*Clinical Microbiology: Clinically Important Bacteria		Wilder	1	/	Medical Microbiology		
	Thu	9/2/21	3:00pm	Clinical Microbiology: Clinically Important Bacteria		Wilder	1	/	Medical Microbiology		
			2:00pm	*Antimicrobial Pharmacotherapy: Cell Wall Synthesis Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology		
	Thu	9/2/21	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		
	3	Wed	9/8/21	2:00pm	*Antimicrobial Medicinal Chemistry: Cell Wall Synthesis Inhibitors	I	Adbelaziz	3	S15.01, S15.16	Medicinal Chemistry	
				3:00pm	Antimicrobial Medicinal Chemistry: Cell Wall Synthesis Inhibitors		Adbelaziz	3	S15.01, S15.16	Medicinal Chemistry	
Thu		9/9/21	2:00pm	*Antimicrobial Pharmacotherapy: Protein Synthesis Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology		
			3:00pm	Antimicrobial Pharmacotherapy: Protein Synthesis Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology		
4	Wed	9/15/21	4:00pm	Antimicrobial Pharmacotherapy: Protein Synthesis Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology		
			2:00pm	*Antimicrobial Pharmacotherapy: DNA Synthesis & Replication Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology		
	Thu	9/16/21	3:00pm	Antimicrobial Pharmacotherapy: DNA Synthesis & Replication Inhibitors		Wilder	3	S15.01, S15.16	Pharmacology		
			2:00pm	*Antimicrobial Medicinal Chemistry: Protein Synthesis Inhibitors		Adbelaziz	3	S15.01, S15.16	Medicinal Chemistry		
	Thu	9/16/21	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		
	5	Fri	9/17/21	2:00pm	CASE STUDY SESSION 1						
				3:00pm							
4:00pm											
5	Wed	9/22/21	2:00pm	UNIT I ASSESSMENT (iCAT)							
			3:00pm								
Unit II: Bacterial Infections											
5	Thu	9/23/21	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		
6	Wed	9/29/21	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		
	Thu	9/30/21	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		
	6	Fri	10/1/21	2:00pm	CASE STUDY SESSION 2						
3:00pm											
4:00pm											
7	Wed	10/6/21	2:00pm	*Clostridioides difficile Infection		Wilder	1, 2, 4	S15.23	Pharmacotherapy		
			3:00pm	Gastrointestinal and Intra-Abdominal Infections		Wilder	1, 2, 4	S15.08, S15.25	Pharmacotherapy		
	Thu	10/7/21	2:00pm	*Urinary Tract Infections		Smith	1, 2, 4	S15.09A/B	Pharmacotherapy		
			3:00pm	Urinary Tract Infections		Smith	1, 2, 4	S15.09A/B	Pharmacotherapy		
			4:00pm	Prostatitis		Smith	1, 2, 4	S15.27	Pharmacotherapy		
	7	Fri	10/8/21	2:00pm	CASE STUDY SESSION 3						
3:00pm											
4:00pm											
8	Wed	10/13/21	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		
	Thu	10/14/21	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		
9	Wed	10/20/21	2:00pm	*Sexually Transmitted Infections		Wilder	1, 2, 4	S15.10	Pharmacotherapy		
			3:00pm	Sexually Transmitted Infections		Wilder	1, 2, 4	S15.10	Pharmacotherapy		
	Thu	10/21/21	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		
9	Thu	10/21/21	4:00pm	Infective Endocarditis/Central Nervous System Infections		Wilder	1, 2, 4	S15.26, S15.02	Pharmacotherapy		
			2:00pm	UNIT II ASSESSMENT (iCAT)							
10	Wed	10/27/21	3:00pm								

Week	Day	Date	Time	Topic	Unit	Faculty	CLO	WSOP Category	Disease State
UNIT III: Viral, Fungal, Parasitic, and Mycobacterial Infections									
10	Thu	10/28/21	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
	Fri †	10/29/21 †	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
Wed	11/3/21	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		
11	Thu	11/4/21	2:00pm	UT Tyler Career Success Conference: NO CLASSES †					
			3:00pm						
			4:00pm						
	Fri	11/5/21	2:00pm	CASE STUDY SESSION 4 ***Failure to attend the Case Studies session assigned to this course will result in an 2% deduction from your final course grade***					
3:00pm									
4:00pm									
12	Wed	11/10/21	2:00pm	Clinical Microbiology: Mycology	III	Wilder	1	/	Medical Microbiology
			3:00pm	*Antimicrobial Pharmacotherapy: Antifungal Agents		Wilder	3	S15.01	Pharmacology
	Thu	11/11/21	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	Wed	11/17/21	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
	Thu	11/18/21	2:00pm	UNIT III ASSESSMENT (ICAT)					
			3:00pm						
			4:00pm						
	Fri	11/19/21	2:00pm	CASE STUDY SESSION 5					
3:00pm									
4:00pm									
14	Wed	11/24/21	2:00pm	Thanksgiving Holiday: NO CLASSES					
			3:00pm						
	Thu	11/25/21	2:00pm						
			3:00pm						
15	Wed	12/1/21	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
	Thu	12/2/21	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	12/10/21	9:00am	CUMULATIVE FINAL EXAMINATION ‡					
			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 UT Tyler Career Success Conference.									
Double dagger (‡) denotes topics and material from Unit III which will be formatively assessed during the course final examination.									