

## PHAR 7489 Integrated Pharmacotherapy 9: Critical Care and Clinical Toxicology

Spring 2024

### Course Description:

This required course shall serve as an introduction to critical care pharmacotherapy and clinical toxicology with specific emphasis given to toxidromes, acute patient management, and drug therapy as it relates to the critically ill.

### Additional Course Information:

Comprehensive cases will be embedded into the course to ensure longitudinal recall of pharmacotherapy over the course of the didactic curriculum

### Course Credit:

4 credit hours

### Pre-requisites:

P3 Standing

### Class Meeting Days, Time, and Location:

Monday and Wednesday: 2:00 PM – 4:00 PM, WTB 234

### Course Coordinator:

Young Ran Lee, Pharm.D., BCPS, BCCCP, BCIDP

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Office Hours: Tuesday and Thursday 1:00 PM -2:00 PM; 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 at <https://www.uttyler.edu/pharmacy/academic-affairs/files/fcop-syllabus-policies.pdf>. For experiential courses (i.e., IPPE and/or APPE), the Experiential Manual contains additional policies and instructions that supplement the Syllabus Part 1 and 2. Please note, the experiential manual may contain policies with different deadlines and/or instructions. The manual should be followed in these cases.

### 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. Goldfrank's Toxicologic Emergencies (11<sup>th</sup> edition). Lewis S. Nelson, Mary Ann Howland, Neal A. Lewin, Silas W. Smith, Lewis R. Goldfrank, Robert S. Hoffman. McGraw-Hill Education ISBN 978-1-259-85961-8, 2019.
2. Casarett & Doull's Essentials of Toxicology (3<sup>rd</sup> edition). Curtis D. Klaassen and John B Watkins III. McGraw-Hill Education, ISBN 978-0-07-184708-7, 2015.
3. DiPiro JT, Yee GC, Posey L, Haines ST, Nolin TD, Ellingrod V. eds. *Pharmacotherapy: A Pathophysiologic Approach, 11e*. McGraw Hill; 2020.
4. DiPiro JT, Yee GC, Posey L, Haines ST, Nolin TD, Ellingrod V. eds. *Pharmacotherapy: A Pathophysiologic Approach, 12e*. McGraw-Hill; 2021. (for advanced chapters)
5. Other required materials will be posted on the classes' Canvas site. The site address is: [uttyler.edu/canvas](https://uttyler.edu/canvas).

### Recommended Materials:

12/14/2023 v2

1. Marino, PL. *The ICU Book*. 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2013.

### Course Format

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

1. Independent study of selected readings
2. Individual readiness assessment tests (iRATs)
3. Individual active learning strategies (iAPPs)
4. Team-based learning, active learning strategies:
  - a. Team readiness assessment tests (tRATs)
  - b. Team application of content and concepts (tAPPs)
  - c. Team presentation of content and concepts
5. Lecture
6. Educational video clips (online and in-class)

### Course Learning Outcomes

CLOs	PLO(s) Assessed for this CLO	EPAs	ACPE Std. 11 & 12	Grading Method	Assessment Methods
1. Describe the pharmacokinetic and toxicokinetic properties, including the biotransformation processes of select toxins.	1	1.1	1	ES, RUB	1, 2
2. Recognize the clinical presentation and identify distinguishing pathophysiologic features of toxidromes associated with selected toxins.	1, 5, 6	1.1, 1.2, 3.1	1, 2	ES, RUB	1, 2
3. Formulate appropriate therapeutic regimens for selected toxins, including antidotal therapy, where indicated; monitoring parameters; and recommendations for modification to therapeutic regimens based on patient-specific parameters.	1, 2, 5, 6	1.3, 1.4, 1.5, 3.2, 4.2	2, 3	ES, RUB	1, 2
4. Demonstrate understanding of shock state management in critical illness utilizing pathophysiology, pharmacology, and therapeutic knowledge.	1, 5, 6	4.2	1,2	ES, RUB	1, 2
5. Demonstrate understanding of medications utilized in critical illness by utilizing pathophysiology, pharmacology, and therapeutic knowledge.	1, 2, 5, 6	4.2	1,2	ES, RUB	1, 2
6. Develop plans for supportive care of critically ill patients, including sedation, analgesia and pain management, stress ulcer and DVT prophylaxis, nutrition support, and glucose control.	1, 2, 5, 6	1.3, 1.4, 1.5, 3.2, 4.2	1, 2	ES, RUB	1,2

### Course Assessment Methods

	Assessment Method	Description
1	Midterm/Final Exam Multiple Choice or Multiple Selection Question(s)	<i>Standard MCQ and Select All That Apply questions.</i>
2	Midterm/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:

### 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 (OSCEs). Examinations, RATs and CATs may consist of, but not limited to, multiple-choice, true/false, fill in the blank, short-answer, essay, and problem-based questions.

All examinations, tests, and assignments, including the final examination, may be **cumulative**. Students are responsible for material presented during 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 Part 2 of the syllabus

(<https://www.utt Tyler.edu/pharmacy/academic-affairs/files/fcop-syllabus-policies.pdf>).

During the time the course is in progress, students who obtain less than 75% on any summative assessment or a total course grade of less than 75% during a particular semester will receive an academic alert from the course coordinator and the Office of Academic Affairs and be subject to weekly in-course remediation with the course instructor(s).

#### Standard Grade Calculation\*

<b>Individual Component</b>	<b>95%</b>
iRATs/Individual Applications/Activities (iAPPs)	5%
Assessment (iCAT) 1	22%
Assessment (iCAT) 2	19%
Assessment (iCAT) 3	19%
Cumulative Final Examination	30%
<b>Team Component</b>	<b>5%</b>
tRATs	1%
Team Applications/Activities (tAPPs)	4%
<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	65-69.999%
F	<65%

## PHAR 7489 Course Schedule

Week	Day	Date	Topic	iCAT	Faculty	CLO	Disease States		
1	Wed	1/17/24	Pharmacotherapy: Introduction to Critical Care (FAST-HUG BID)/Stress ulcer, DVT Prophylaxis, Glucose Management	1	Lee	5, 6	\$18.99		
	Mon	1/22/24	Pharmacotherapy: Pain, Agitation, Sedation, and Delirium		Lee	5, 6	\$18.12		
2	Wed	1/24/24	Pharmacotherapy: Introduction to Toxicology/Management of Poisoned Patient: General Principles of Clinical Toxicology		Cocchio	1, 2	\$19.99		
	Mon	1/29/24	Pharmacotherapy: Fluid Management		Lee	5	\$04.05		
3	Wed	1/31/24	Pharmacotherapy: Management of Acetaminophen Toxicity		Cocchio	1, 2, 3	\$19.01		
	Mon	2/5/24	Pharmacotherapy: Electrolyte Management		Lee	5	\$04.05		
4	Wed	2/7/24	Pharmacotherapy: Hyperglycemic Crises (DKA/HHS)		Lee	5, 6	\$07.02		
	Mon	2/12/24	<b>iCAT 1 (22 % of course grade)</b>		Lee				
5	Wed	2/14/24	Pharmacotherapy: Management of Opioid Toxicity		2	Cocchio	1, 2, 3	\$19.02	
	Mon	2/19/24	Pharmacotherapy: Categorization of Shock and Vasopressors			Lee	4	\$18.13, \$18.16	
6	Wed	2/21/24	Pharmacotherapy: Management of Salicylate Toxicity	Cocchio		1, 2, 3	\$19.09		
	Mon	2/26/24	Pharmacotherapy: Sepsis and Septic Shock	Lee		4	\$15.12, \$18.28		
7	Wed	2/28/24	Pharmacotherapy: Management of Toxic Alcohol Toxicity	Cocchio		1, 2, 3	\$19.19		
	Mon	3/4/24	Pharmacotherapy: ICU thrombocytopenia (including HIT)	Lee		5	\$14.06		
8	Wed	3/6/24	<b>iCAT 2 (19% of course grade)</b>	Lee					
	Mon	3/11/24	<b>Spring Break: NO CLASSES</b>						
	Wed	3/13/24	<b>Spring Break: NO CLASSES</b>						
	Mon	3/18/24	Pharmacotherapy: Respiratory Support	3		Lee	5, 6	\$18.15	
9	Wed	3/20/24	Pharmacotherapy: Management of Cardiovascular Agent Toxicity/*Management of Neuropsychiatric Agent Toxicity		Cocchio	1, 2, 3	\$19.07, \$19.08. \$19.10, \$19.18		
	Mon	3/25/24	Pharmacotherapy: Acute Respiratory Distress Syndrome		Lee	5, 6	\$18.10		
10	Wed	3/27/24	Pharmacotherapy: Cardiac Life Support (Advanced)		Cocchio	5	\$01.13B		
	Mon	4/1/24	Pharmacotherapy: Status Epilepticus		Lee	5	\$05.04		
11	Wed	4/3/24	Pharmacotherapy: Management of Toxic Envenomations		Cocchio	1, 2, 3	\$19.05		
	Mon	4/8/24	<b>iCAT 3 (19% of course grade)</b>		Lee				
12	Wed	4/10/24	Pharmacotherapy: Management of Sympathomimetic Toxicity		Final	Cocchio	1, 2, 3	\$19.12	
	Mon	4/15/24	Pharmacotherapy: Traumatic Brain Injury			Lee	5	\$18.12	
13	Wed	4/17/24	Pharmacotherapy: Emergent Reversal of Anticoagulants and Antiplatelets			Cocchio	1, 2, 3	\$19.06	
	Mon	4/22/24	Comprehensive case (critical care)	Lee					
14	Wed	4/24/24	Comprehensive case (clinical toxicology)	Cocchio					
	Tue	4/30/24	<b>Comprehensive Final Examination (cumulative) (30% of course grade)</b>	Lee					

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.