

Integrated Pharmacotherapy 9: Critical Care and Clinical Toxicology

PHAR 7489

Spring Semester 2023

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:

Tuesday and Wednesday: 3:00 – 5:00 PM, WTB 133

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 as a PDF at <https://www.uttyler.edu/pharmacy/academic-affairs/>. 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 (11th 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 (3rd 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.

Recommended Materials:

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 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>

Course Learning Outcomes

CLOs	PLO(s) Assessed for this CLO	EPAs	Assessment Methods	Grading Method	ACPE Std. 11 & 12
1. Describe the pharmacokinetic and toxicokinetic properties, including the biotransformation processes of select toxins.	1	1.1	1, 2	ES, RUB	1
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	1, 2	ES, RUB	2, 3
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

Attendance

To receive full credit a student must attend all class session. Only those students that have prior approval for distance learning will be allowed to attend remotely. Students can request an excused absence, see the Attendance and Make-up Policy (beginning page 2) <https://www.utt Tyler.edu/pharmacy/academicaffairs/files/fcop-syllabus-policies.pdf>

Grading Policy & Grade Calculation:

Grades will be determined based on evaluation of individual and team readiness assessment tests (iRATs, tRATs), individual cumulative assessment tests (iCATs), final written examinations, graded application assignments, participation in team-based projects, and other assessment methods that may include, but are not limited to assignments and projects at the discretion of the course coordinator and instructors.

Examinations, RATs and CATs may consist of, but are 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 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 the examination/assessment policy below.

Standard Grade Calculation*

Individual Component	95%
iRATs/Individual Applications/Activities (iAPPs) (The lowest iRAT grade will be dropped.)	10%
Assessment (iCAT) 1	28%
Assessment (iCAT) 2	22%
Cumulative Final Examination	35%
Team Component	5%
tRATs	1%
Team Applications/Activities (tAPPs)	4%
Total	100%

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
Spring Semester 2023

Week	Day	Date	Time	Topic	iCAT	Faculty	CLO	FCOP Category	
Clinical Toxicology									
1	Tue	1/10/23	3:00pm-5:00pm	Course Introduction & Introduction to Critical Care (FAST-HUG BID)	1	Lee	5,6	\$18.99	
	Wed	1/11/23	3:00pm-5:00pm	*Pain, Agitation, Sedation, and Delirium		Lee	5,6	\$18.11	
2	Tue	1/17/23	3:00pm-5:00pm	*Stress ulcer, DVT Prophylaxis, Glucose Management		Lee	5,6	\$18.99	
	Wed	1/18/23	3:00pm-5:00pm	Introduction to Toxicology/*Management of Poisoned Patient: General Principle		Wilder	1,2	\$19.03, \$19.04, \$19.99	
3	Tue	1/24/23	3:00pm-5:00pm	*Fluid Management	1	Lee	5	\$04.05	
	Wed	1/25/23	3:00pm-5:00pm	*Management of Acetaminophen Toxicity		Wilder	1,2,3	\$19.01	
4	Tue	1/31/23	3:00pm-5:00pm	*Electrolyte Management		Lee	5	\$04.05	
	Wed	2/1/23	3:00pm-5:00pm	*Management of Salicylate Toxicity		Wilder	1,2,3	\$19.09	
5	Tue	2/7/23	3:00pm-5:00pm	*Hyperglycemic Crises (DKA/HHS)	1	Lee	5,6	\$07.02	
	Wed	2/8/23	3:00pm-5:00pm	*Management of Toxic Alcohol Toxicity		Wilder	1,2,3	\$19.19	
6	Tue	2/14/23	3:00pm-5:00pm	*ICU thrombocytopenia (including HIT)		Lee	5,6	\$14.05, \$14.06	
	Wed	2/15/23	3:00pm-5:00pm	Comprehensive case 1		Lee/Wilder	/	/	
7	Tue	2/21/23	3:00pm-5:00pm	iCAT 1					
	Wed	2/22/23	3:00pm-5:00pm	*Management of Opioid Toxicity	2	Wilder	1,2,3	\$19.02	
8	Tue	2/28/23	3:00pm-5:00pm	*Categorization of Shock and Vasopressors (I)		Lee	4	\$18.13, \$18.16	
	Wed	3/1/23	3:00pm-5:00pm	*Management of Cardiovascular Agent Toxicity/*Management of Neuropsychiatric	Wilder	1,2,3	\$19.07, \$19.08, \$19.10, \$19.11, \$19.18		
9	Tue	3/7/23	3:00pm-5:00pm	*Categorization of Shock and Vasopressors (II)	2	Lee	4	\$18.13, \$18.16	
	Wed	3/8/23	3:00pm-5:00pm	* Cardiac Life Support (Advanced)		Wilder	5	\$01.13B	
10	Tue	3/14/23	3:00pm-5:00pm	Spring Break: NO CLASSES					
	Wed	3/15/23	3:00pm-5:00pm	Spring Break: NO CLASSES					
11	Tue	3/21/23	3:00pm-5:00pm	*Sepsis and Septic Shock	2	Lee	4	\$15.12, \$18.28	
	Wed	3/22/23	3:00pm-5:00pm	*Management of Toxic Envenomations		Wilder	1,2,3	\$19.05	
12	Tue	3/28/23	3:00pm-5:00pm	*Respiratory Support/Acute Respiratory Distress Syndrome		Romerill	5,6	\$18.10, \$18.15	
	Wed	3/29/23	3:00pm-5:00pm	Comprehensive case 2		Lee/Wilder	/	/	
13	Tue	4/4/23	3:00pm-5:00pm	iCAT 2					
	Wed	4/5/23	3:00pm-5:00pm	*Status Epilepticus	Final	Romerill	5	\$05.04	
14	Tue	4/11/23	3:00pm-5:00pm	*Management of Sympathomimetic Toxicity	Final	Wilder	1,2,3	\$19.12	
	Wed	4/12/23	3:00pm-5:00pm	*Traumatic Brain Injury		Romerill	5	\$18.12	
15	Tue	4/18/23	3:00pm-5:00pm	*Emergent Reversal of Anticoagulants and Antiplatelets		Wilder	1,2,3	\$19.06	
	Wed	4/19/23	3:00pm-5:00pm	Comprehensive case 3		Romerill/Lee/Wild	/	/	
16	Tue	4/25/23	9:00am-12:00pm	Comprehensive Final Examination					

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/IRAT; please note, iRATs/IRATs can occur at any time at the discretion of the course faculty.