

PHAR 7489 Integrated Pharmacotherapy 9: Critical Care and Clinical Toxicology
Spring 2025

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:

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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 policies and procedures. 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 Learning Outcomes

CLOs	PLO(s) Assessed for this CLO (1-12)	ACPE Appendix 1	ACCP Didactic Toolkit	NAPLEX (1.1-6.5)	Assessment Methods (1-13)
1. Describe the pharmacokinetic and toxicokinetic properties, including the biotransformation processes of select toxins.	1	Biochemistry, Medicinal Chemistry	1 Acetaminophen toxicity 2 Digoxin toxicity 2 Anticoagulation overdose and reversal	2.1, 4.5	1
2. Recognize the clinical presentation and identify distinguishing pathophysiologic features of toxidromes associated with selected toxins.	1,2	Patient Assessment, Toxicology	1 Acetaminophen toxicity 1 Opioid overdose 2 Anticoagulation overdose and reversal 2 Antidepressant overdose (including serotonin syndrome) 2 Antihypertensive medication toxicity 2 Benzodiazepine overdose 2 Digoxin toxicity 2 Salicylate poisoning 2 Sympathomimetic toxicity (e.g., cocaine, amphetamines, novel synthetic cathinones) 2 Toxic alcohol poisoning (e.g., ethylene glycol, methanol)	1.1, 1.5, 3.7	1
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.	2,5	Clinical Laboratory Data, Toxicology	1 Acetaminophen toxicity 1 Opioid overdose 2 Anticoagulation overdose and reversal 2 Antidepressant overdose (including serotonin syndrome) 2 Antihypertensive medication toxicity 2 Benzodiazepine overdose 2 Digoxin toxicity 2 Salicylate poisoning 2 Sympathomimetic toxicity (e.g., cocaine, amphetamines, novel synthetic cathinones) 2 Toxic alcohol poisoning (e.g., ethylene glycol, methanol)	3.2, 3.4, 3.9	1
4. Demonstrate understanding of shock state management in critical illness utilizing pathophysiology, pharmacology, and therapeutic knowledge.	1,2,5	Patient Assessment, Clinical Laboratory Data	2 Sepsis 2 Shock syndromes	1.5	1, 9

5. Demonstrate understanding of medications utilized in critical illness by utilizing pathophysiology, pharmacology, and therapeutic knowledge.	1,2	Pathology/Pathophysiology, Pharmacology	1 Electrolyte disorders (e.g., potassium, calcium, phosphorus, magnesium) 2 Acid–base disturbances 2 Sodium and water disorders (including fluid management) 2 Status epilepticus 2 Acute respiratory distress syndrome 2 CNS trauma 2 Respiratory support (including rapid sequence intubation)	2.1, 3.2, 3.4, 3.12, 4.5	1, 9
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	Pharmacotherapy	1 Drug dosing in altered kidney function (excluding dialysis) 2 Pain, agitation, and delirium	3.2, 3.4	1, 9

Course Summative Assessment Methods

	Assessment/Examination Method
1	Question-based examination (ExamSoft-based)
2	Question-based examination (paper-based)
3	Comprehensive Case
4	Skills Assessment
5	OSCE
6	Team Project
7	Individual Project
8	Oral Presentation
9	SOAP Note
10	Reflection Essay
11	Simulation
12	Internship/Observation
13	Other major assignment. Please specify:

Grading Policy & Grade Calculation:

Grades will be determined based on evaluation of assignments, formative assessments (for learning), and summative assessments (for mastery). For all intents and purposes, final examinations are synonymous with summative assessments. Assessments may consist of, but are not limited to, multiple-choice, true/false, fill in the blank, short-answer, essay, and problem-based questions. They may also include a variety of formats beyond the traditional question-based written examination, as each CLO may require different methods to determine student achievement.

Assignments, formative, and summative assessments 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.

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*

Individual Component	95%
iRATs/Individual Applications/Activities (iAPPs)	5%
Assessment (iCAT) 1	21%
Assessment (iCAT) 2	18%
Assessment (iCAT) 3	21%
Cumulative Final Examination	30%
Team Component	5%
tRATs/ Team Applications/Activities (tAPPs)	5%
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%

Appropriate Use of Artificial Intelligence

Artificial intelligence (AI) tools (such as ChatGPT or Copilot) are permitted only for specific assignments or situations. When AI use is permissible, it will be clearly stated in the assignment directions, and all use of AI must be appropriately acknowledged and cited. Otherwise, the default is that AI is not allowed during any stage of an assignment.

PHAR 7489 Course Schedule

Week	Day	Date	Topic	iCAT	Faculty	CLO	
1	Mon	1/13/25	Pharmacotherapy: Introduction to Critical Care (FAST-HUG BID)/Stress ulcer, DVT Prophylaxis, Glucose Management	1	Lee	5, 6	
	Wed	1/15/25	Pharmacotherapy: Pain, Agitation, Sedation, and Delirium		Lee	5, 6	
	Mon	1/20/25	School holiday				
2	Wed	1/22/25	Pharmacotherapy: Introduction to Toxicology/Management of Poisoned Patient: General Principles of Clinical Toxicology		Cocchio	1, 2	
3	Mon	1/27/25	Pharmacotherapy: Fluid Management		Lee	5	
	Wed	1/29/25	Pharmacotherapy: Management of Acetaminophen Toxicity		Cocchio	1, 2, 3	
4	Mon	2/3/25	Pharmacotherapy: Electrolyte Management		Lee	5	
	Wed	2/5/25	Pharmacotherapy: Hyperglycemic Crises (DKA/HHS)		Lee	5, 6	
5	Mon	2/10/25	iCAT 1 (21% of course grade)				
	Wed	2/12/25	Pharmacotherapy: Management of Salicylates Toxicity		Cocchio	1, 2, 3	
6	Mon	2/17/25	Pharmacotherapy: Categorization of Shock and Vasopressors	Lee	4		
	Wed	2/19/25	Pharmacotherapy: Sepsis and Septic Shock	Lee	4		
7	Mon	2/24/25	Pharmacotherapy: Management of Cardiovascular Agent and Diabetes Medications Toxicity	2	Cocchio	1, 2, 3	
	Wed	2/26/25	Pharmacotherapy: Management of Neuropsychiatric Agent Toxicity (1) - Serotonin syndrome-neuroleptic malignant syndrome-malignant hyperthermia-Bupropion		Cocchio	1, 2, 3	
8	Mon	3/3/25	Pharmacotherapy: ICU thrombocytopenia (including HIT)	2	Lee	5	
	Wed	3/5/25	iCAT 2 (18% of course grade)				
9	Mon	3/10/25	Pharmacotherapy: Management of Neuropsychiatric Agent Toxicity (2) - Anticholinergic-TCA-Valproic	3	Cocchio	5, 6	
	Wed	3/12/25	Pharmacotherapy: Respiratory Support		Lee	1, 2, 3	
	Mon	3/17/25	Spring break				
	Wed	3/19/25	Spring break				
10	Mon	3/24/25	Pharmacotherapy: Acute Respiratory Distress Syndrome		Lee	5, 6	
	Wed	3/26/25	Pharmacotherapy: Cardiac Life Support (Advanced)		Cocchio	5	
11	Mon	3/31/25	Pharmacotherapy: Status Epilepticus		Lee	5	
	Wed	4/2/25	Pharmacotherapy: Management of Toxic Envenomations and Toxic Alcohol		Cocchio	1, 2, 3	
12	Mon	4/7/25	iCAT 3 (21% of course grade)				
	Wed	4/9/25	Pharmacotherapy: Management of Sympathomimetic and Opioid Toxicity		Cocchio	1, 2, 3	
13	Mon	4/14/25	Pharmacotherapy: Traumatic Brain Injury	Lee	5		
	Wed	4/16/25	Pharmacotherapy: Emergent Reversal of Anticoagulants and Antiplatelets	Cocchio	1, 2, 3		
14	Mon	4/21/25	Comprehensive case (critical care)	Final	Lee		
	Wed	4/23/25	Comprehensive case (clinical toxicology)		Cocchio		
15	Tue	4/29/24	Comprehensive Final Examination (cumulative) (30% of course grade)				

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.