

Al-Mansour University College
Department of Anesthesia Techniques
Pharmacology I Course Description

1. Course Name	
Pharmacology I (Theory and Practical)	
2. Course Code	
ANT21106	
3. Semester/Year	
Second Year / First Semester	
4. Date this description was prepared	
25/9/2026	
5. Available attendance forms	
On-campus theoretical lectures and supervised practical classes.	
6. Total academic hours	
4 contact hours per week: 2 theoretical and 2 practical. Over 15 teaching weeks: 30 theoretical hours and 30 practical hours (60 total contact hours).	
7. Name of course coordinator(s)	
Name and academic title: Asst. Lect. Ahmed Ayad Ali Email: ahmed.ayad@muc.edu.iq	
8. Course objectives	
Objectives of the study subject	By the end of the course, students should be able to: 1. Explain pharmacokinetic and pharmacodynamic principles that determine drug effects. 2. Classify autonomic, cardiovascular, respiratory, hematologic, and anesthetic drugs and describe their main mechanisms, uses, and adverse effects. 3. Relate pharmacological effects to anesthesia practice, including patient monitoring and medication safety. 4. Interpret introductory drug information, simulated observations, and brief clinical cases within the scope of an anesthesia techniques student.

9. Teaching and learning strategies

Teaching strategies	Interactive lectures, diagrams, drug class comparisons, and short anesthesia-related cases. Practical sessions use demonstrations, calculations, simulated records, and supervised case discussion.
Learning strategies	Guided reading, small-group discussion, worksheets, drug charts, interpretation of simulated data, formative quizzes, and feedback.

10. Course structure

Theoretical syllabus: 15 teaching weeks, 2 hours per week (30 hours total).

Wk	Hrs	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	Explain ADME, receptor interactions, potency, efficacy, agonists, and antagonists.	Principles of drug therapy: pharmacokinetics and pharmacodynamics	Lecture; case discussion	Quiz; short answers
2	2	Compare cholinergic drug actions and relevant clinical effects.	Cholinergic agonists and antagonists	Lecture; case discussion	Quiz; short answers
3	2	Relate receptor selectivity to cardiovascular and airway responses.	Adrenergic agonists and antagonists	Lecture; case discussion	Quiz; short answers
4	2	Classify major agents and discuss perioperative considerations.	Antihypertensive drugs and drugs for heart failure	Lecture; case discussion	Quiz; short answers
5	2	Identify major classes, expected effects, and safety concerns.	Antiarrhythmic and antianginal drugs	Lecture; case discussion	Quiz; short answers
6	2	Compare major classes and effects on fluid and electrolytes.	Diuretics	Lecture; case discussion	Quiz; short answers
7	2	Distinguish major uses and adverse effects.	Antihistamines	Lecture; case discussion	Quiz; short answers

10. Course structure continued					
Wk	Hrs	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
8	2	Explain bronchodilators and their clinical relevance.	Drugs for respiratory system disorders, Part I	Lecture; case discussion	Quiz; short answers
9	2	Explain anti-inflammatory and other respiratory therapies.	Drugs for respiratory system disorders, Part II	Lecture; case discussion	Quiz; short answers
10	2	Classify common therapies and connect them to oxygen delivery.	Drugs for anemia	Lecture; case discussion	Quiz; short answers
11	2	Compare mechanisms and identify bleeding-related precautions.	Anticoagulants and antiplatelet agents	Lecture; case discussion	Quiz; short answers
12	2	Distinguish neuromuscular blocking drugs and reversal concepts.	Skeletal muscle relaxants	Lecture; case discussion	Quiz; short answers
13	2	Explain mechanism, clinical uses, and toxicity recognition.	Local anesthetics	Lecture; case discussion	Quiz; short answers
14	2	Classify intravenous anesthetic agents and their principal effects.	General anesthetics, Part I	Lecture; case discussion	Quiz; short answers
15	2	Classify inhalational anesthetics and compare key characteristics.	General anesthetics, Part II	Lecture; case discussion	Quiz; short answers

Total theoretical contact hours: 30.

11. Practical course structure

Practical syllabus: 15 teaching weeks, 2 hours per week (30 hours total). Sessions emphasize supervised interpretation, calculations, demonstrations, and simulated cases.

Wk	Hrs	Practical topic and expected task
1	2	Orientation, medicine labels, dosage forms, routes of administration, and medication safety.
2	2	Absorption and distribution: compare routes, onset, and protein binding using worksheets.
3	2	Metabolism and elimination: interpret clearance, half-life, and renal or hepatic impairment cases.
4	2	Pharmacokinetics: calculate basic dose-related parameters and interpret concentration-time graphs.
5	2	Pharmacodynamics: read graded dose-response curves and identify agonism and antagonism.
6	2	Cholinergic drugs: interpret simulated heart-rate, secretion, and pupil observations.
7	2	Adrenergic drugs: compare simulated blood-pressure, pulse, and airway responses.
8	2	Cardiovascular drugs: match antihypertensive, heart-failure, antianginal, and antiarrhythmic drug profiles to brief cases.
9	2	Diuretics: interpret simulated fluid-balance and electrolyte records.
10	2	Antihistamines and respiratory drugs: classify agents and discuss sedation and airway considerations.
11	2	Drugs for anemia, anticoagulants, and antiplatelets: interpret basic laboratory and medication-history scenarios.
12	2	Skeletal muscle relaxants: identify drug classes, monitoring concepts, and reversal principles using simulation.
13	2	Local anesthetics: compare onset, duration, and signs of systemic toxicity in case cards.
14	2	General anesthetics I: compare intravenous agents using simulated patient profiles.
15	2	General anesthetics II: compare inhalational agents and integrate a perioperative medication review.
Total	30	15 weeks $\times$ 2 practical contact hours.

Practical learning: demonstrations, worksheets, simulations, and supervised case analysis. Assessment: quizzes, calculations, interpretation tasks, and a practical examination. Total practical contact hours: 30.

12. Course evaluation

The course carries 100 marks: 40 for coursework (25 theory and 15 practical) and 60 for the final examination (35 theory and 25 practical).

Assessment component	Marks
Coursework	25 theory + 15 practical = 40
Final examination	35 theory + 25 practical = 60
Total	60 theory + 40 practical = 100

Theory and practical components are assessed separately as shown below.

13. Learning and teaching resources

Required textbooks	To be designated by the Department of Anesthesia Techniques.
Main references	Katzung and Trevor's Basic and Clinical Pharmacology; Lippincott Illustrated Reviews: Pharmacology; Stoelting's Pharmacology and Physiology in Anesthetic Practice.
Recommended resources	Department-approved drug charts, anesthesia pharmacology handouts, and simulated case materials.
Electronic references and websites	Department-approved electronic learning materials and lecture slides.

14. Course development plan

Review drug examples and simulation cases annually, update safety-related teaching materials, strengthen integration of theory with practical interpretation, and use student performance and feedback to refine instruction.