



**Jordan University of Science and Technology**  
**Faculty of Applied Medical Sciences**  
**Anesthesia Technology Department**

ANET362 Advanced Pharmacology Of Anesthesia - JNQF Level: 7

Second Semester 2023-2024

**Course Catalog**

3 Credit Hours. This advanced course provides an in-depth understanding of the pharmacological principles underlying anesthesia practice. Students will explore the intricate mechanisms of action, pharmacokinetics, pharmacodynamics, and clinical applications of anesthetic agents and adjuncts used in modern anesthesia practice. This course delves into the complexities of anesthesia pharmacology, providing students with a comprehensive understanding of the molecular targets, physiological effects, and clinical considerations associated with various anesthetic agents. T

**Teaching Method:** On Campus

**Text Book**

|                          |  |
|--------------------------|--|
| <b>Title</b>             | Morgan and Mikhail's Clinical Anesthesiology |
| <b>Author(s)</b>         | Butterworth, John, et al.                    |
| <b>Edition</b>           | 6th Edition                                  |
| <b>Short Name</b>        | 1  |
| <b>Other Information</b> |  |

**Instructor**

|                        |  |
|------------------------|--|
| <b>Name</b>            | <b>Dr. Maram Alakhras</b>  |
| <b>Office Location</b> | -  |
| <b>Office Hours</b>    | Sun : 12:00 - 13:30<br>Mon : 11:00 - 12:30<br>Tue : 13:00 - 14:30<br>Wed : 11:00 - 12:30 |
| <b>Email</b>           | mmalakhras@just.edu.jo   |

**Class Schedule & Room**

Section 1:

Lecture Time: Mon, Wed : 10:00 - 11:30

Room: مدرج عرار

**Prerequisites**

| Line Number | Course Name                         | Prerequisite Type    |
|-------------|-------------------------------------|----------------------|
| 1173610     | ANET361 Pharmacology For Anesthesia | Prerequisite / Study |

**Tentative List of Topics Covered**

| Weeks            | Topic  | References |
|------------------|--|------------|
| Weeks 1, 2       | Mechanisms of Action: Detailed exploration of the mechanisms of action of different classes of anesthetic agents, including inhalational agents, intravenous anesthetics, neuromuscular blockers, analgesics, and adjunctive medications.                                | From 1     |
| Weeks 3, 4       | Pharmacokinetics and Pharmacodynamics: Understanding the pharmacokinetic principles governing drug absorption, distribution, metabolism, and elimination, as well as the pharmacodynamic interactions between anesthetic agents and their target receptors.              | From 1     |
| Weeks 5, 6, 7    | Anesthetic Depth Monitoring: Utilization of pharmacokinetic and pharmacodynamic models for individualized titration of anesthetic agents to achieve optimal depth of anesthesia while minimizing the risk of awareness and side effects.                                 | From 1     |
| Weeks 8, 9       | Inhalational Anesthetics: Examination of the properties, delivery methods, and clinical considerations associated with volatile anesthetics, including their effects on cardiovascular, respiratory, and central nervous system function.                                | From 1     |
| Weeks 10, 11     | Intravenous Anesthetics: Evaluation of the pharmacological profiles, dosing regimens, and clinical applications of intravenous anesthetic agents, such as propofol, etomidate, ketamine, and barbiturates.   | From 1     |
| Weeks 12, 13, 14 | Neuromuscular Blocking Agents: In-depth analysis of the mechanism of action, pharmacokinetics, reversal agents, and clinical monitoring of neuromuscular blockers used for muscle relaxation during surgery.   | From 1     |
| Weeks 15, 16     | Adjuvant Medications: Review of adjunctive medications commonly used in anesthesia practice, including opioids, benzodiazepines, alpha-2 agonists, antiemetics, and local anesthetics, with emphasis on their pharmacological properties and perioperative applications. | From 1     |

| Mapping of Course Outcomes to Program Outcomes and NQF Outcomes  | Course Outcome Weight (Out of 100%) | Assessment method |
|--|-------------------------------------|-------------------|
| Analyze the pharmacokinetic and pharmacodynamic principles underlying the action of anesthetic agents, including inhalational agents, intravenous agents, neuromuscular blockers, and adjunctive medications. [1PLO 1] [1L7K1] | 25%                                 |                   |

|  |     |  |
|--|-----|--|
| Evaluate the mechanisms of action, clinical indications, dosage regimens, and adverse effects of advanced anesthesia pharmacotherapy, such as volatile anesthetics, opioids, local anesthetics, and neuromuscular blocking agents. [1PLO 4] [1L7C4]  | 25% |  |
| Apply principles of pharmacogenetics and individualized drug therapy in anesthesia practice to optimize patient outcomes and minimize adverse drug reactions. [1PLO 2] [1L7S2]   | 25% |  |
| Critically appraise current research literature and emerging trends in anesthesia pharmacology, including novel drug formulations, drug interactions, and perioperative pharmacotherapy strategies, to inform evidence-based clinical decision-making and practice advancement. [1PLO 6] [1L7S1] | 25% |  |

| Relationship to Program Student Outcomes (Out of 100%) |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|
| PLO 1  | PLO 2 | PLO 3 | PLO 4 | PLO 5 | PLO 6 |
| 25   | 25    |       | 25    |       | 25    |

| Relationship to NQF Outcomes (Out of 100%) |      |      |      |
|--|------|------|------|
| L7K1                                       | L7S1 | L7S2 | L7C4 |
| 25   | 25   | 25   | 25   |

| Evaluation      |        |
|-----------------|--------|
| Assessment Tool | Weight |
| Mid-term Exam   | 60%    |
| Final Exam      | 40%    |

| Policy |
|--------|
|--------|

|  |  |
|--|--|
| <p>Code of Conduct and Academic Integrity Guidelines</p> | <p>Statement on Professionalism: Professional behavior is expected of students at all times. Attitude and professional behavior are a minimum criterion for passing this class. Examples of unprofessional behavior include but are not limited to: missing classes, tardiness, lack of attention for a speaker, talking to others during lecture, leaving a lecture prior to its completion without prior authorization of the instructor, working on other class material during class, and sleeping during class.</p> <p>Cheating: University regulations will be applied on cases of cheating and/or plagiarism</p> <p>Cell phone: The use of cellular phone is prohibited in class rooms and during exams. The cellular phone must be switched off in class rooms and during exams.</p> <p>Attendance: No points will be count for points attendance of this class, however attending the lectures will greatly enhance your grade. The student is responsible for any information discussed in lecture sessions. It is imperative to attend all classes!</p> <p>Absences: University regulations will be applied. Students are not allowed to be absent for more than 20% of lectures for any reason or excuse. If a student exceeds the absence limit, he or she will not be allowed to sit for future course exams. (Please review university regulation for more details)</p> <p>Make-up Exam: is entitled for students who miss the exam with accepted legal or medical excuse endorsed by the instructor within 24 hours after the scheduled exam (Please review university regulation for more details)</p> <p>Feedback: Concerns, complaints, questions, and/or feedback are appreciated and will be important for the instructor. You can contact your instructor using the e-mail or during office hours.</p> |
|--|--|

Date Printed: 2024-03-24