

University of Pennsylvania
School of Nursing
Course Syllabus

TITLE: N 617 Principles of Nurse Anesthesia Practice I

COURSE UNITS: 1 cu

CATALOG DESCRIPTION:

This course focuses on the pre-anesthesia assessment conducted by nurse anesthetists. Particular emphasis is placed on airway management and how to manage potential and actual common complications. The pre-anesthesia assessment of the patient is reviewed with specific focus on the anatomical and physiological issues surrounding airway maintenance and the administration of anesthesia. Opportunities to practice airway management techniques and regional anesthetic techniques through the use of simulation are provided.

PLACEMENT: Summer I/II Year I

FACULTY: Russell R. Lynn, CRNA, MSN

PRE-REQUISITES: None

CO-REQUISITES: NURS 681

COURSE OVERVIEW:

This course introduces the student to a comprehensive pre-anesthesia assessment and management of surgical patients receiving anesthesia. An emphasis on potential and actual complications is included, along with a focus on the development of an anesthesia care plan, anesthesia techniques and the use of equipment and monitoring modalities.

COURSE OBJECTIVES:

1. Describe the anatomy and physiology of the human airway.
2. Identify the alterations in anatomy that can impact airway management and intubation.
3. Identify possible complications of intubation.
4. Initiate maneuvers and utilization of various devices for the management of the difficult airway.
5. Develop a working knowledge of the difficult airway algorithm.
6. Demonstration of oral intubation and use of a laryngoscope.
7. Discuss the components of anesthesia and factors that influence the choice of anesthetics.
8. Identify the goals of a pre-anesthesia assessment.
9. Apply the components of a systems assessment to the surgical patient population.
10. Discuss integration of perioperative assessment to selection of anesthetic.
11. Explore post operative nausea and vomiting prophylaxis regimens.

12. Explore the history of anesthetics, the practice of nurse anesthesia, and the factors which impact current practice.
13. Discuss the role of the AANA and the professional aspects of Nurse Anesthesia Practice.
14. Describe compressed gas properties, approved methods of transportation, and the regulatory agencies that governing the manufacturing and transportation of compressed gas.
15. Describe the use of medical gas cylinders in anesthesia practice.
16. Describe the piping system in hospitals, anesthesia machines, and anesthesia circuits employed in anesthesia delivery.
17. Become familiar with the function of various parts of the anesthesia machine including the ventilator, vaporizer, scavenger system, carbon dioxide absorbent, second stage regulator, and the oxygen flush valve.
18. Describe the function, safety features, and potential hazards associated with the anesthesia machine.
19. Demonstrate the ability to conduct a FDA approved anesthesia machine safety check.
20. Discuss the monitoring systems utilized in the peri operative area.
21. Explore the application of regional anesthesia and associated complications.
22. Discuss calculations of peri operative medications and fluid needs.
23. Discuss calculations of estimated blood volume and blood replacement therapies.
24. Examine anesthesia documentation.
25. Examine various patient positioning for surgery along with associated complications, alterations in physiologic functions, and peripheral nerve injuries
26. Review routine pharmacologic agents used in anesthesia from a pharmacokinetic and pharmacodynamic perspective.
27. Review appropriate dosage ranges of commonly used anesthetic agents.
28. Identify various safety features within the operative suite environment.
29. Examine the medical – legal aspect of the Nurse Anesthetist’s Practice with specific focus on the Standards of care and scope of the Anesthetist’s practice.

TEACHING METHODS:

Lecture, discussion, demonstration, laboratory simulation

EVALUATION METHODS:

Exam #1 (Positioning, Medico Legal, Airway)	6-10-13	25%
Exam #2 (Basics)	6-25-13	50%
Exam #3 (Machine)	7-16-13	25%

GRADING POLICY

A+ 97-100 A 93-96 A- 90-92
 B+ 87-89 B 83-86 B- 80-82
 C+ 77-79 C 73-76 C- 70-72

Below 70 = F

Grades will be rounded as follows:

.1-.5 will be rounded up to .5, .6-.9 will be rounded up to the next whole number.

Should a student be found in violation of the University's Code of Academic Integrity for work in this course, their grade for the entire course will be a failure.

Code of Academic Integrity

Since the University is an academic community, its fundamental purpose is the pursuit of knowledge. Essential to the success of this educational mission is a commitment to the principles of academic integrity. Every member of the University community is responsible for upholding the highest standards of honesty at all times. Students, as members of the community, are also responsible for adhering to the principles and spirit of the following Code of Academic Integrity.

Academic Dishonesty Definitions

Activities that have the effect or intention of interfering with education, pursuit of knowledge, or fair evaluation of a student's performance are prohibited. Examples of such activities include but are not limited to the following definitions:

- A. Cheating: using or attempting to use unauthorized assistance, material, or study aids in examinations or other academic work or preventing, or attempting to prevent, another from using authorized assistance, material, or study aids. Example: using a cheat sheet in a quiz or exam, altering a graded exam and resubmitting it for a better grade, etc.
- B. Plagiarism: using the ideas, data, or language of another without specific or proper acknowledgment. Example: copying another person's paper, article, or computer work and submitting it for an assignment, cloning someone else's ideas without attribution, failing to use quotation marks where appropriate, etc.
- C. Fabrication: submitting contrived or altered information in any academic exercise. Example: making up data for an experiment, fudging data, citing nonexistent articles, contriving sources, etc.
- D. Multiple submissions: submitting, without prior permission, any work submitted to fulfill another academic requirement.
- E. Misrepresentation of academic records: misrepresenting or tampering with or attempting to tamper with any portion of a student's transcripts or academic record, either before or after coming to the University of Pennsylvania. Example: forging a change of grade slip, tampering with computer records, falsifying academic information on one's resume, etc.
- F. Facilitating academic dishonesty: knowingly helping or attempting to help another violate any provision of the Code. Example: working together on a take-home exam, etc.
- G. Unfair advantage: attempting to gain unauthorized advantage over fellow students in an academic exercise. Example: gaining or providing unauthorized access to examination materials, obstructing or interfering with another student's efforts in an academic exercise, lying about a need for an extension for an exam or paper, continuing to write even when time is up during an exam, destroying or keeping library materials for one's own use., etc.

* If a student is unsure whether his action(s) constitute a violation of the Code of Academic Integrity, then it is that student's responsibility to consult with the instructor to clarify any ambiguities.

(Source: Office of the Provost, 1996)

REQUIRED TEXTS:**Nurse Anesthesia 5th edition (2014) (N&P)**

John Nagelhout, Karen Plaus
Elsevier Saunders

Clinical Anesthesia, 7th edition (2013) (BAR)

Paul Barash, Bruce F. Cullen, Robert K. Stoelting, Michael Cahalan, M. Christine Stock
Rafael Ortega MD
Lippincott Williams & Wilkins

Pharmacology and Physiology in Anesthetic Practice, 4th edition (2006) (S&H)

Robert Stoelting, Simon Hiller
Lippincott Williams & Wilkins

Anesthesia and Co-Existing Disease 5th edition (2008) (S&D)

Robert Stoelting, Stephen Dierdorf
Elsevier Sanders

Watchful Care: A history of America's Nurse Anesthetists (2004)

Marianne Bankert
AANA Publishing

TEXTS REQUIRED BY AUGUST FOR CLINICAL**Surgical Procedures & Anesthesia Implications Handbook for Nurse Anesthesia Practice (2011)**

Lynn Fitzgerald Macksey
Jones & Bartlett

RECOMMENDED TEXTS**Atlas of Regional Anesthesia 3rd edition (2006)**

David L. Brown, Jo Ann Clifford, Allan Ross
W B Saunders

A Professional Study and Resource Guide For The CRNA 2011 (FOSTER)

S. D. Foster, M. Faut-Callahan 2001
AANA Publishing

Clinical Techniques of Regional Anesthesia 3rd edition (2007) (REESE)

Charles Reese
AANA Publishing

Clinical Anesthesiology 4th edition (2006) (M&M)

G. Edward Morgan, Maged S. Mikhail, Michael J. Murray

WEEKLY TOPICAL OUTLINE:

Date/Time	Topic	Objective	Readings
Week 1 Tuesday 05/21/13	Welcome & Orientation to the course Program Faculty		
Week 2 Monday 05/27/13	<ul style="list-style-type: none"> ➤ Memorial Day ➤ No class 		
Week 2 Tuesday 5/28/13 R Lynn	<ul style="list-style-type: none"> ➤ Explore the history of anesthesia practice ➤ Discuss the components of the pre-anesthetic evaluation including airway assessment, labs, and H&P ➤ Discuss NPO guidelines ➤ Discuss Mendelson's syndrome 	7-9, 11-13 26-7	N&P Chps 1-2, & 19 BAR Chps 1, 22 Foster Chp 1-2 Watchful Care: a history of America's Nurse Anesthetists
Week 3 Monday 06/03/13 M. Kost 9-12	<ul style="list-style-type: none"> ➤ Discussion of Medical Legal aspects of the Nurse Anesthetist's Practice 	28-29	Foster Chp 7 & 16-17 BAR Chp 4 N&P Chp 3 As assigned
Week 3 Monday 06/03/13 M. Kost 1-4	<ul style="list-style-type: none"> ➤ Discuss patient positioning in the intra operative phase. ➤ Explore common peripheral nerve injury associated with various positions. ➤ Examine the physiologic effect associated with various positions 	25	N&P Chp 21 BAR Chp 28
Week 3 Tuesday 06/04/13 K Wiltse	<ul style="list-style-type: none"> ➤ Explore the anatomy and physiology of the airway ➤ Examine the components of an airway evaluation ➤ Demonstration of various airway equipment and manual ventilation ➤ Discuss the application of different modes of airway management ➤ Develop a working knowledge of the difficult airway algorithm 	1-6	N&P Chp 22 BAR Chp 27
Week 4 Monday 06/10/13 R Lynn 9-12	<ul style="list-style-type: none"> ➤ EXAM #1 ➤ Choice of Anesthetic Technique ➤ Examine routine anesthetic pharmacologic agents. ➤ Discuss assessment of risk factors and prophylactic treatment of post operative nausea and vomiting. ➤ Explore the pathophysiology & 	7-9, 11, 26 & 27	N&P Chps 8,9,11 BAR Chp 17-21 S&H Chps 2-6 For MH read N&P p829-833 & BAR 622-623 For PONV read N&P 1237-1238 and BAR 518

	treatment of malignant hyperthermia		
Week 4 Tuesday 06/11/12 R Lynn	<ul style="list-style-type: none"> ➤ Discuss methods of regional anesthesia administration ➤ Discuss complications of regional anesthetics ➤ Discuss mechanism of action of local anesthetics 	7-10, 21	Reese Sections I-IV BAR Chp 34 N&P Chps 10 & 44
Week 5 Monday 06/17/13 9-12 R. Lynn	<ul style="list-style-type: none"> ➤ Examine OR Safety ➤ Discuss selection and calculation of peri operative fluids and medication 	28 22-23	N&P Chp 20 BAR pages 210-216, 333-314, & 419-438
Week 5 6/17/13 Monday 1-4 R. Lynn	<ul style="list-style-type: none"> ➤ Discuss methods of Peri operative Monitoring, peri operative Equipment, and Anesthesia documentation during the perioperative phase of patient care 	0,24 7,9	N&P Chp 16-18 & pages 329-334 (Evoked potentials) BAR Chp 25
Week 5 6/18/13 Tuesday R. Lynn	<ul style="list-style-type: none"> ➤ Case Discussions and development of anesthetic plan 		
Week 6 6/24/13 Monday 9-4 M. Kost	<ul style="list-style-type: none"> ➤ Explore the function and components of the Anesthesia gas machine ➤ THIS CLASS IS 9am – 4pm 	14-19	BAR Chp 24
Week 6 6/25/13 Tuesday	<ul style="list-style-type: none"> ➤ BASICS EXAM 		
Week 7 07/1/13 9-4PM M. Kost	<ul style="list-style-type: none"> ➤ Discuss various safety features that are built into the anesthesia gas machine ➤ Examine case reports of anesthesia machine malfunctions ➤ THIS CLASS IS 9am-4pm 	14-19	N&P Chp 15
Week 7 7-2-13 Tuesday	<ul style="list-style-type: none"> ➤ NURS 681 content 		
Week 8 Monday 07-8-13 R. Lynn	<ul style="list-style-type: none"> ➤ Simulation: general induction sequencing, regional anesthesia ➤ LOCATION TBA 		Demo Lab
Week 8 7-9-13	<ul style="list-style-type: none"> ➤ NURS 681 content 		

Week 9 Monday 7-15-13	<ul style="list-style-type: none"> ➤ Simulation: Return Demo competencies for regional anesthesia and general induction sequencing ➤ 		Return Demo Lab
Week 9 Tuesday 7-16-13	<ul style="list-style-type: none"> ➤ ANESTHESIA GAS MACHINE EXAM 		
Week 10 Monday 7-22-13 9-4	<ul style="list-style-type: none"> ➤ OR ORIENTATION ➤ Schedule TBA 		
Week 10 Tuesday 7-23-13 9-12	<ul style="list-style-type: none"> ➤ OR ORIENTATION ➤ Schedule TBA 		
Week 11 Monday 7-29-13 9-4	<ul style="list-style-type: none"> ➤ OR ORIENTATION ➤ Schedule TBA 		
Week 11 7-30-13 9-4	<ul style="list-style-type: none"> ➤ OR ORIENTATION ➤ Schedule TBA 		
Week 12 Week 8-5	<ul style="list-style-type: none"> ➤ CLINICAL @ Primary Site 		
Week 13 Week 8-12	<ul style="list-style-type: none"> ➤ AANA annual meeting 		
Week 14 Week 8-19	<ul style="list-style-type: none"> ➤ CLINICAL @ Primary Site 		
Week 15 Week 8-26	<ul style="list-style-type: none"> ➤ CLINICAL @ Primary Site 		