

# NURSING: ANESTHESIA (NSAN)

## **NSAN 7640 Professional Aspects of Nurse Anesthesia Practice I 1 Credit** **Prerequisite:** NSAN 7674.

This course provides a basic introduction for the nurse anesthesia resident on a variety of topics important for professional nurse anesthesia practice. During NSAN 7640, nurse anesthesia residents will learn vital clinical and non-clinical subject matter, including the history of anesthesia, professional organizations dedicated to anesthesiology, and review of the Professional Practice Manual for nurse anesthetists. Additionally, an emphasis on health and wellness for the anesthesia provider will be discussed, along with essential tools and information for the nurse anesthesia resident.

## **NSAN 7641 Professional Aspects of Nurse Anesthesia Practice II 2 Credits** **Prerequisite:** NSAN 7640.

This course provides advanced instruction for the nurse anesthesia resident on a variety of topics important for professional nurse anesthesia practice. Building upon knowledge gained in NSAN 7640 and ongoing clinical experiences, nurse anesthesia residents will learn legal considerations for the nurse anesthetist, current political trends in anesthesia practice, and the variety of business models used by anesthesiology providers. Reflective practice techniques will be utilized, with a continued emphasis on health and wellness for the anesthesia provider.

## **NSAN 7650 Clinical Integration for Nurse Anesthesia Practice I 2 Credits** **Co-requisite:** NSAN 7677. **Prerequisite:** NSAN 7674.

Clinical Integration I is designed to introduce nurse anesthesia residents to the hands-on basics of nurse anesthesiology practice and develop a foundation for clinical experiences in Clinical Integration II. Nurse anesthesia residents will participate in static and high-fidelity simulations as they begin to apply theoretical and didactic knowledge to prepare for clinical experiences.

## **NSAN 7651 Ultrasound Guided Concepts and Techniques I 2 Credits** **Co-requisite:** NSAN 7651L, NSAN 7677. **Prerequisite:** NSAN 7674.

This course introduces the nurse anesthesia resident to ultrasound technology, concepts, and techniques. It teaches students to apply knowledge of anatomy, physiology, pharmacology, basic ultrasound technology, and other related procedures under ultrasound guidance.

## **NSAN 7651L Ultrasound Guided Concepts and Techniques I Lab 0 Credits** **Corequisite:** NSAN 7651. **Prerequisite:** NSAN 7674.

This lab introduces nurse anesthesia residents to the hands-on, kinesthetic basics of ultrasound-guided techniques. Students will develop technical skills for performing a variety of ultrasound-guided procedures and anesthesia techniques. Teaching methods will include demonstration, equipment workshops, reflection/debriefing, and simulation.

## **NSAN 7652 Ultrasound Guided Concepts and Techniques II 2 Credits** **Prerequisite:** NSAN 7651.

This course builds upon the knowledge and skills gained in Ultrasound-Guided Concepts and Techniques I. Nurse anesthesia residents will continue to apply their developing knowledge of anatomy, physiology, pharmacology, and advanced ultrasound technology to the administration and maintenance of regional anesthesia, patient assessment and management, and other advanced procedures under ultrasound guidance. Co-requisite: NSAN 7652L

## **NSAN 7652L Ultrasound Guided Concepts and Techniques II Lab 0 Credits** **Co-requisite:** NSAN 7652. **Prerequisite:** NSAN 7651.

This course will facilitate continued hands-on training for nurse anesthesia residents and build upon the previous knowledge and skills obtained. Students will continue developing technical skills for performing a variety of ultrasound-guided procedures and anesthesia techniques. Teaching methods will include demonstration, equipment workshops, reflection/debriefing, and simulation.

## **NSAN 7655 Clinical Integration for Nurse Anesthesia Practice II 2 Credits** Clinical Integration II is designed to build upon the skills acquired in Clinical Integration I and develop a strong foundation for concurrent and future clinical courses. Nurse anesthesia residents will participate in simulation scenarios across the lifespan and will develop the necessary skills and knowledge to effectively integrate clinical practices, evidence-based research, and critical thinking into their role.

## **NSAN 7669 Advanced Pathophysiology for Anesthesia Practice 4 Credits** This course focus is on the pathophysiological processes central to alterations in function across the lifespan. Analysis of pathophysiologic responses, implications of genetics and genomics, and laboratory data pertinent to acute and chronic disease is discussed. Students analyze the pathophysiology of patients presenting for in-patient and ambulatory procedures using a case study approach. 56 theory hours. Previously NURS 7669.

## **NSAN 7671 Chemistry and Physics for Nurse Anesthetists 3 Credits** This course provides a detailed discussion of basic organic, inorganic, and biochemical principles, and basic physical principles as they related to nurse anesthesia practice. Emphasis is placed upon the behavior of gases and the gas laws, principles of diffusion, gas flow and resistance, acid-base balance, and the biochemical processes necessary for basic cellular function. In addition, the basic physical principles of work, energy, light, electricity, and radiation are discussed with a focus on operating room safety and the use of biomedical equipment. Group discussion is utilized to facilitate the application of these principles to the clinical setting.

## **NSAN 7672 Pharmacologic Strategies in Anesthesia Practice 3 Credits** **Prerequisites:** NSAN 7671, NURS 7670.

This course presents a comprehensive study of the pharmacokinetics, pharmacodynamics and pharmacogenetics of drugs utilized in anesthesia practice. Students will focus upon the mechanisms of action of inhalational anesthetics, intravenous anesthetics, and neuromuscular blocking agents. Special attention will be placed upon the comparative pharmacology of all anesthetic agents as well as their effects on all organ systems. Emphasis will be placed on the practical applications of the anesthetic agents through case presentations and group discussion.

**NSAN 7673 Principles of Nurse Anesthesia Practice I 4 Credits**

This course provides an introduction to the basic principles of anesthesia practice and perioperative management of patients across the lifespan. Emphasis is placed on the anesthesia workstation, patient monitoring modalities, procedural positioning, fluid homeostasis, and principles of airway management. Additionally, nurse anesthesia residents will learn necessary preoperative processes including patient evaluation, interpretation of physiologic studies, and informed consent by analyzing current best practices and learning to develop an anesthesia plan of care.

**NSAN 7673L Principles of Nurse Anesthesia Practice I Lab 0 Credits**

This laboratory-based course accompanies NSAN 7673 and is designed to introduce the nurse anesthesia resident to the technical skills and critical thinking necessary for professional anesthesia practice. Hands-on experience with anesthesia workstations, airway apparatus, and patient positioning is provided. In addition, nurse anesthesia residents will learn how to perform comprehensive anesthetic assessments on patients during simulated preoperative evaluations and will interpret findings as it relates to the anesthetic plan of care. Teaching methods include demonstration, equipment workshops, and simulation. Co-requisite: NSAN 7673

**NSAN 7674 Principles of Nurse Anesthesia Practice II 4 Credits**

**Prerequisite:** NSAN 7673.

This course provides an in-depth discussion of the anesthetic management of patients undergoing an array of surgical procedures across the perianesthesia continuum. Emphasis is placed on the preoperative assessment, patient preparation, perioperative management and postoperative care of patients undergoing intraabdominal, orthopedic, and thoracic procedures. Students analyze current best practices in the development of the anesthesia plan of care.

**NSAN 7674L Principles of Nurse Anesthesia Practice II Lab 0 Credits**

**Prerequisite:** NSAN 7673L.

This laboratory-based course accompanies NSAN 7674 and is designed to enhance the students' technical skill and critical thinking as it relates to anesthesia practice. Emphasis will be placed on application of didactic knowledge and decision making in simulated scenarios involving anesthetic management of patients during laparoscopic, robotic, bariatric, and gynecological surgeries. In addition, nurse anesthesia residents will practice the skills necessary for management of thoracic procedures in hands-on laboratory sessions. Teaching methods will include demonstration, equipment workshops, reflection/debriefing, and simulation. Co-requisite: NSAN 7674

**NSAN 7675 Clinical Orientation and Specialty Rotations 1 Credit**

**Prerequisite:** NSAN 7677.

Clinical orientation is designed to introduce the student to the hands-on basics of nurse anesthesia practice. Emphasis will be placed on anesthesia equipment setup drug preparation, basic airway management skills and basic regional anesthesia skills. In addition, students will begin the process of developing patient specific anesthesia care plans on simulated patients utilizing current best practices. Students also take part in an orientation to the PACU, anesthesia pain service, anesthesia preoperative holding area, preoperative testing and respiratory therapy service. These rotations introduce the student to the adjunct hospital services necessary for the care of the patient during the perioperative period. Current standards of care and codes of ethical practice, including issues surrounding wellness and chemical dependency, will also be explored.

**NSAN 7676 Regional Anesthesia and Pain Management in Clinical Practice 2 Credits**

**Prerequisite:** NSAN 7677.

This course presents a comprehensive study of the regional anesthesia techniques currently utilized in clinical practice. Basic principles of neuroscience, pharmacology of local anesthetics and ultrasound technology will be applied. Emphasis will be put on the appropriate selection and application of regional techniques to achieve optimal anesthesia and analgesia for surgery and pain management. Teaching methods will include lecture, demonstration and hands-on regional workshops.

**NSAN 7677 Principles of Nurse Anesthesia Practice III 4 Credits**

**Prerequisite:** NSAN 7674.

This course provides an advanced discussion of anesthetic management for specific patient populations, coexisting disease states, and surgical procedures. Specialty anesthesia practice is emphasized through review of cardiac, vascular, neurological, obstetric, and pediatric procedures and associated comorbidities. Additional focus will be placed on the unique considerations for the anesthetic management of trauma surgeries, non-operating room procedures, and organ transplantation by analyzing current best practices in the development of the specialty anesthesia plan of care.

**NSAN 7678 Clinical Correlation Conference 2 Credits**

**Prerequisite:** NSAN 7954.

This course provides students with the opportunity to integrate knowledge necessary for professional nurse anesthesia practice utilizing comprehensive case presentations, which integrate and discuss current anesthesia topics, equipment, techniques and practices involved in current anesthesia case management. Ethical considerations as they apply to specific case management will be discussed. This review will utilize a combination of didactic lectures, exams, case presentations and seminar discussions. An emphasis will be placed on neuroanesthesia and the anesthetic management for major coexisting disease in preparation for the national certification exam.

**NSAN 7679 Principles of Nurse Anesthesia Practice IV 2 Credits**

**Prerequisite:** NSAN 7677.

This course provides an in-depth discussion of the anesthetic management for specific patient populations, coexisting disease states, and surgical procedures. Emphasis will be placed on the administration of anesthesia in non-operating room locations including endoscopy, interventional cardiology, and interventional radiology. Anesthetic management of anesthesia for plastics, trauma, burns, and organ transplantation will also be presented. Students will analyze current best practices in the development of the anesthetic plan of care.

**NSAN 7941 Nurse Anesthesia Residency Correlation I 1 Credit**

**Co-requisite:** NSAN 7956.

**Prerequisite:** NSAN 7950.

Nurse Anesthesia Residency Correlation I is designed for the novice nurse anesthesia resident to integrate their academic knowledge with the practical application of Nurse Anesthesia Residency I. Through this course, nurse anesthesia residents will prepare for their first Self-Examination Exam provided by the NBCRNA. An introduction to asynchronous board review modules alongside module exams will be completed, as well as a clinical case study (Adult, Geriatric, Regional, Pediatric) to dive deeper into evidence-based knowledge and critical thinking. Activities, such as care plans, notecards, and simulation will be assigned to organize, administer, and manage anesthesia in the general or specialty setting.

**NSAN 7942 Nurse Anesthesia Residency Correlation II 1 Credit****Co-requisite:** NSAN 7957.**Prerequisite:** NSAN 7941.

Nurse Anesthesia Residency Correlation II is designed for the beginning, intermediate nurse anesthesia resident to integrate their academic knowledge with the practical application of Nurse Anesthesia Residency II. Through this course, residents will continue asynchronous board review modules with complementary exams, as well as a clinical case study (Adult, Geriatric, Regional, Pediatric) to dive deeper into evidence-based knowledge and critical thinking. Activities, such as care plans, notecards, and simulation will be assigned to organize, administer, and manage anesthesia in the general or specialty setting.

**NSAN 7943 Nurse Anesthesia Residency Correlation III 1 Credit****Co-requisite:** NSAN 7958.**Prerequisite:** NSAN 7942.

Nurse Anesthesia Residency Correlation III is designed for the intermediate nurse anesthesia resident to integrate their academic knowledge with the practical application of Nurse Anesthesia Residency III. Through this course, residents will continue asynchronous board review modules with complementary exams, as well as a clinical case study (Adult, Geriatric, Regional, Pediatric) to dive deeper into evidence-based knowledge and critical thinking. Activities, such as care plans, notecards, and simulation will be assigned to organize, administer, and manage anesthesia in the general or specialty setting.

**NSAN 7944 Nurse Anesthesia Residency Correlation IV 1 Credit****Co-requisite:** NSAN 7959.**Prerequisite:** NSAN 7943.

Nurse Anesthesia Residency Correlation IV is designed for the advanced nurse anesthesia resident to integrate their academic knowledge with the practical application of Nurse Anesthesia Residency III. Through this course, residents will continue asynchronous board review modules with complementary exams, as well as the final clinical case study (Adult, Geriatric, Regional, Pediatric) for deeper understanding of evidence-based knowledge and critical thinking. Activities, such as care plans, notecards, and simulation will be assigned to organize, administer, and manage anesthesia in the general or specialty setting.

**NSAN 7945 Nurse Anesthesia Residency Correlation V 1 Credit****Co-requisite:** NSAN 7960.**Prerequisite:** NSAN 7944.

Nurse Anesthesia Residency Correlation V is designed for the complex nurse anesthesia resident to integrate their academic knowledge with their independent, practical application of Nurse Anesthesia Residency V. Nurse anesthesia residents must achieve the benchmark score as set by the program on the Self-Examination Exam provided by the NBCRNA prior to successful completion of the course. Board review will culminate in this course with the completion of multiple comprehensive exams. Activities, such as care plans, notecards, and simulation will be assigned to organize, administer, and manage anesthesia in the general or specialty setting.

**NSAN 7950 Transition to Nurse Anesthesia Residency 1 Credit****Co-requisite:** NURS 7641.**Prerequisite:** NSAN 7650.

Transition to Nurse Anesthesia Residency is designed to complement Clinical Integration for Nurse Anesthesia Practice II. This course will provide the hands-on, kinesthetic learning experiences to develop a foundation for all Nurse Anesthesia Residency Courses. Nurse anesthesia residents will begin with some basic shadowing experiences and progress to align with Gray Badge Privileges. Clinical expectations will be provided specific to the program, and residents will be provided information from assigned clinical sites. These clinical experiences will introduce the resident to clinical training in the nurse anesthesia specialty.

**NSAN 7951 Clinical Practicum I 1 Credit****Prerequisites:** NSAN 7675, NSAN 7676.

Clinical Practicum I is designed for the novice practitioner to integrate academic knowledge with basic practical application. Emphasis will be placed on basic airway management, function and usage of anesthesia equipment; pre-operative assessment and evaluation, intra-operative management and post-anesthesia management for healthy ASA Class I and Class II patients. The student works side by side with a certified anesthesia provider at all times.

**NSAN 7952 Clinical Practicum II 1 Credit****Prerequisite:** NSAN 7951.

This clinical practicum provides experience for the beginning intermediate student practitioner who has demonstrated successful completion of Clinical Practicum I. Clinical Practicum II deals with the incorporation and integration of knowledge, skills and objectives for a more comprehensive and complex range of patients and surgeries. Emphasis is placed on the development of independent critical decision making skills as the students begins to gain independence in practice.

**NSAN 7953 Clinical Practicum III 2 Credits****Prerequisite:** NSAN 7952.

This course provides experience for the intermediate student practitioner in order to incorporate and integrate advanced academic knowledge, clinical skills, and critical decision making for a more comprehensive range of patients. At the completion of Clinical Practicum III the student will demonstrate the ability to manage the anesthesia care of the ASA Class I-IV and IE-VE with supervision. Student independence is encouraged as the intermediate anesthesia provider works alone with attending physicians for healthy uncomplicated procedures and supervised for more complex cases.

**NSAN 7954 Clinical Practicum IV 2 Credits****Prerequisite:** NSAN 7953.

This clinical practicum is designed to allow the advanced student practitioner to integrate all previously attained knowledge and clinical skills into anesthesia practice for all elective and emergency ASA Class I-IV patients. At the completion of Clinical Practicum IV the Advanced Student Practitioner will be able to formulate, implement and evaluate a plan for perioperative anesthesia care for adult and pediatric ASA I-IV patients and ASA IE-VE patients with supervision, demonstrate critical thinking skills in a diverse range of clinical situations, including off-site anesthesia locations and as a member of the "code team," work in a collaborative effort with other members of the anesthesia and surgical care teams, exhibit ethical and professional behavior in anesthesia practice and function as a patient advocate.

**NSAN 7955 Clinical Practicum V****2 Credits****Prerequisite:** NSAN 7954.

This final clinical practicum is designed to allow the Complex Practitioner to demonstrate the integration of all previous knowledge, skills and objectives, for the anesthetic management of all ASA I-V and ASA IE-VE patients. At the completion of Clinical Practicum V the student will be able to function as an independent practitioner and will have met all of the requirements in order to sit for the national certification examination. The complex practitioner will be able to formulate, implement and evaluate a plan for perioperative anesthesia care for adult and pediatric ASA I-V and ASA IE-VE patients, demonstrate critical thinking skills in all clinical situations and patient care venues, work in a collaborative effort with other members of the anesthesia and surgical care team, function as a team leader and collaborative member in cardiopulmonary resuscitation, and exhibit ethical and professional behavior in anesthesia practice.

**NSAN 7956 Nurse Anesthesia Residency I****3 Credits****Prerequisites:** NSAN 7675, NSAN 7676.

Nurse Anesthesia Residency I is designed for the novice practitioner to integrate academic knowledge with basic practical application. Emphasis will be placed on basic airway management, function and usage of anesthesia equipment; pre-operative assessment and evaluation, intra-operative management and post-anesthesia management for healthy ASA Class I and Class II patients. The student works side by side with a certified anesthesia provider at all times.

**NSAN 7957 Nurse Anesthesia Residency II****3 Credits****Prerequisite:** NSAN 7956.

This clinical practicum provides experience for the beginning intermediate student practitioner who has demonstrated successful completion of Nurse Anesthesia Residency I. Nurse Anesthesia Residency II deals with the incorporation and integration of knowledge, skills and objectives for a more comprehensive and complex range of patients and surgeries. Emphasis is placed on the development of independent critical decision making skills as the students begins to gain independence in practice.

**NSAN 7958 Nurse Anesthesia Residency III****4 Credits****Prerequisite:** NSAN 7957.

This course provides experience for the intermediate student practitioner in order to incorporate and integrate advanced academic knowledge, clinical skills, and critical decision making for a more comprehensive range of patients. At the completion of Nurse Anesthesia Residency III the student will demonstrate the ability to manage the anesthesia care of the ASA Class I-V and IE-VE with supervision. Student independence is encouraged as the intermediate anesthesia provider works alone with attending physicians for healthy uncomplicated procedures and supervised for more complex cases.

**NSAN 7959 Nurse Anesthesia Residency IV****4 Credits****Prerequisite:** NSAN 7958.

This clinical practicum is designed to allow the advanced student practitioner to integrate all previously attained knowledge and clinical skills into anesthesia practice for all elective and emergency ASA Class I-V patients. At the completion of Nurse Anesthesia Residency IV the Advanced Student Practitioner will be able to formulate, implement and evaluate a plan for perioperative anesthesia care for adult and pediatric ASA I-V patients and ASA IE-VE patients with supervision, demonstrate critical thinking skills in a diverse range of clinical situations, including off-site anesthesia locations and as a member of the "code team," work in a collaborative effort with other members of the anesthesia and surgical care teams, exhibit ethical and professional behavior in anesthesia practice and function as a patient advocate.

**NSAN 7960 Nurse Anesthesia Residency V****4 Credits****Prerequisite:** NSAN 7959.

This final clinical practicum is designed to allow the Complex Practitioner to demonstrate the integration of all previous knowledge, skills and objectives, for the anesthetic management of all ASA I-V and ASA IE-VE patients. At the completion of Nurse Anesthesia Residency V the student will be able to function as an independent practitioner and will have met all of the requirements in order to sit for the national certification examination. The complex practitioner will be able to formulate, implement and evaluate a plan for perioperative anesthesia care for adult and pediatric ASA I-V and ASA IE-VE patients, demonstrate critical thinking skills in all clinical situations and patient care venues, work in a collaborative effort with other members of the anesthesia and surgical care team, function as a team leader and collaborative member in cardiopulmonary resuscitation, and exhibit ethical and professional behavior in anesthesia practice.

**NSAN 7965 Nurse Anesthesia Certification Board Review****2 Credits****Co-requisite:** NSAN 7960.**Prerequisite:** NSAN 7959.

This course provides nurse anesthesia residents with a comprehensive review of the knowledge necessary for the national certification exam and subsequent professional nurse anesthesia practice. This review will utilize a combination of self-paced learning modules, completion of board-style practice questions, didactic lectures, and exams. Additionally, nurse anesthesia residents will demonstrate comprehension through case presentations discussing relevant physiology, anesthetic management of patient comorbidities and specialty populations, and current techniques in anesthesia practice. Seminar discussions will provide the opportunity to exchange dialogue on unique clinical experiences and ethical considerations as they apply to specific case management.