

# Nurse Anesthesia

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Nurse anesthesia is one of many academic programs of the KU School of Health Professions (<http://healthprofessions.kumc.edu>) and is located on the campus of the KU Medical Center (<http://www.kumc.edu>) in Kansas City, Kan.

Beginning with the class entering summer 2016, the entry-level clinical doctorate in nurse anesthesia offered at KU is the Doctor of Nurse Anesthesia Practice, replacing the Doctor of Nursing Practice degree. The program draws upon the extraordinary academic and clinical resources offered by the University of Kansas Medical Center (<http://www.kumc.edu>) and The University of Kansas Health System (<http://www.kumed.com>), along with the many outstanding clinical affiliate sites (<https://www.kumc.edu/school-of-health-professions/academics/departments/nurse-anesthesia-education/academics/clinical-education.html>) to enhance the student's learning opportunities.

## Program Philosophy

The program is dedicated to helping its graduates achieve full professional competence. The practice of nurse anesthesia requires a strong nursing foundation. The nurse anesthetist must be able to interpret the multiple science disciplines that contribute to nurse anesthesia professional education.

The complexity of contemporary anesthesia practice requires this integration. The nurse anesthetist must be able to practice competently and apply intelligently the humanistic, scientific, and technical skills of the profession.

## Mission and Vision

The **mission** of the KU nurse anesthesia program is to produce an exemplary nurse anesthesia provider fully qualified to deliver safe, competent anesthesia services to the public. The KU Department of Nurse Anesthesia Education, in concert with the broad overall missions of the university, School of Health Professions, and Office of Graduate Studies provides quality graduate education, specific to the practice of nurse anesthesia, based on sound research in a scholarly academic and technologically superior clinical environment.

The **vision** of the program is to produce highly competent graduates, dedicated to serve the anesthesia health care needs of the public who will be recognized as national leaders and role models for nurse anesthesia education.

For more details, please visit the department's website (<http://www.kumc.edu/school-of-health-professions/nurse-anesthesia-education.html>).

## Courses

### **NURA 761. Nurse Anesthesia Pharmacology I. 3 Credits.**

Gain advanced pharmacologic knowledge pertinent to perioperative anesthetic management. This course focuses on, but is not limited to, the following areas: general pharmacology principles, intravenous induction agents, inhalation anesthetics, opioid and nonopioid analgesics, principles of the autonomic nervous system, G-proteins, cardiac pharmacology, and diuretics. Students will enhance critical analytical thinking, problem-solving skills, and ability to synthesize didactic information to the clinical environment. The intent of this didactic course is to guide students in

the acquisition, synthesis, and integration of advanced pharmacologic principles related to anesthesia practice.

### **NURA 764. Nurse Anesthesia Pharmacology II. 3 Credits.**

The intent of this didactic course is to guide students in the acquisition, synthesis, and integration of advanced pharmacologic principles related to anesthesia practice. In this course, the student will acquire advanced pharmacologic knowledge pertinent to perioperative anesthetic management. This semester the focus will be on, but not limited to, the following areas: neuromuscular blocking drugs and reversal agents, anti-Parkinson and anti-convulsant medications, psychiatric medications, pulmonary pharmacology, local anesthetics, endocrine pharmacology, antiemetics, antimicrobials, and chemotherapy. The goal of this learning will be to enhance the student's critical analytical thinking, problem-solving skills, and ability to synthesize didactic information to the clinical environment. Prerequisite: NURA 761.

### **NURA 800. Professional Aspects of Anesthesia. 3 Credits.**

This course includes orientation to the profession of nurse anesthesia. The student will gain an understanding of the anesthesia department management and organization. The history of anesthesia will be discussed. Ethical, psychological, professional adjustments and legal responsibilities of the nurse anesthetist will be presented.

### **NURA 801. Introduction to Clinical Practicum. 1 Credits.**

Students will engage in clinical practice that involves introduction to basic anesthesia skills. Emphasis is given to patient assessment, anesthetic planning and management of the patient population of low risk categories. The course includes introduction to clinical problem solving and "call" experiences that address the trauma patient and emergency surgical/anesthetic interventions for pathological states. Prerequisite: Permission of Instructor.

### **NURA 805. Clinical Anatomy. 4 Credits.**

An intensive study of the major anatomical systems and regions of the body which have clinical significance for anesthetists and others. Particular attention devoted to the respiratory, cardiovascular, and nervous systems. Regional topics include the anatomy of the head, neck, vertebral column, thorax, axilla, and femoral triangle. Involves both lectures and cadaver dissection, plus appropriate models, x-ray films, and audiovisual materials. Prerequisite: Admission to the Nurse Anesthesia Program or permission of instructor.

### **NURA 806. Advanced Physiology. 4 Credits.**

A course designed to lead to an advanced comprehension of the physiology of organ systems in the human in both cellular and organ processes. Physiology subject matter relevant to clinical health sciences include membrane transport, muscle, cardiovascular, respiratory, renal, water and electrolyte balance, gastrointestinal, and endocrine physiology as well as neurophysiology. Cellular mechanisms include the structure and function of ion channels and pumps, mechanisms of calcium regulation, excitation-coupling processes and mechanisms of oxidative cell damage and apoptosis. Prerequisite: Permission of instructor.

### **NURA 808. Health Care Policy for Advanced Nursing Practice. 2 Credits.**

Students will utilize current clinical and legislative issues to examine ways to conceptualize the issues into social policy contexts. Assignments throughout the course are employed to both demonstrate and engage students in leadership and structural systems theories to effect change in healthcare policy. The course includes social policy development across the lifespan, leadership styles which influence change, and the implementation and analysis of policy solutions. Prerequisite: Successful completion of first three semesters of Doctor of Nurse Anesthesia Practice curriculum.

**NURA 809. Adv Pathophysiology. 3 Credits.**

A course designed to lead to advanced comprehension of pathophysiologic processes in the human body. Course content will build upon prior nursing education and professional experiences to provide a scientific basis for clinical application related to anesthetic planning and implementation. The intent of this course is to prepare the nurse anesthesia student to engage in critical thinking and problem-solving skills pertinent to the application of best practices involving anesthesia considerations for patients with pathological conditions. Prerequisite: NURA 806 Advanced Physiology.

**NURA 811. Advanced Theory in Anesthesia I. 3 Credits.**

This is the first of five successive courses relative to the didactic study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of ophthalmology and otorhinolaryngology procedures and patients with alterations in the endocrine system. Students enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. In addition, students will be required to engage in analysis of currently published research to identify "best practices" based on research evidence. Prerequisite: Permission of Instructor.

**NURA 812. Advanced Theory in Anesthesia II. 3 Credits.**

This is the second of five successive courses relative to the didactic study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of gastrointestinal and hepatobiliary disorders, bariatrics, robotic/ laparoscopic procedures, otorhinolaryngology disorders, and renal disorders. Students enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. In addition, students will be required to engage in analysis of currently published research to identify "best practices" based on research evidence. Prerequisite: Permission of Instructor.

**NURA 813. Advanced Theory in Anesthesia III. 2 Credits.**

This is the third of five successive courses relative to the didactic study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of obstetrical, neonatal and pediatric patients. Students enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. In addition, students will be required to engage in analysis of currently published research to identify "best practices" based on research evidence. Prerequisite: Permission of Instructor.

**NURA 814. Advanced Theory in Anesthesia IV. 3 Credits.**

This is the fourth of five successive courses relative to the didactic study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of neurosurgical, cardiovascular, thoracic, and transplantation patients. Students enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. In addition, students will be required to engage in analysis of currently published research to identify "best practices" based on research evidence. Prerequisite: Permission of Instructor.

**NURA 815. Advanced Theory in Anesthesia V. 3 Credits.**

This is the fifth of five successive courses relative to the didactic study of the art and science of nurse anesthesiology. This is the final theory course of didactic study for the art and science of nurse anesthesia. Students will acquire the advanced knowledge pertinent to the perioperative anesthetic management of geriatric patients and patients undergoing orthopedic procedures. Students will enhance their critical problem-solving skills and ability to analyze/synthesize didactic anesthesia content for application

to clinical practice. In addition, students will be required to review and engage in analysis of contemporary research to identify "best practices." The course content is provided as web-based and instructor facilitated learning. Prerequisite: Permission of Instructor.

**NURA 820. Information Systems and Data Management in Anesthesia. 1 Credits.**

Information systems, data management concepts, and their applications will be explored. This will enable the doctoral prepared nurse anesthetists to utilize resources to facilitate quality improvement, increase patient safety through outcome measurements, and improve resource utilization in the perioperative period. Prerequisite: Permission of instructor.

**NURA 821. Advanced Practicum in Anesthesia I. 2 Credits.**

This is the first of six courses relative to the application of the art and science of nurse anesthesiology. Each section is designed to address specific surgical categories and the relevant patient care needs and risks. Completion of each course requires acquisition and refinement of clinical skills. Students will demonstrate progression in cognitive, psychomotor and affective skills appropriate to a professional nurse anesthetist. Prerequisite: Permission of Instructor.

**NURA 822. Advanced Practicum in Anesthesia II. 2 Credits.**

This is the second of six courses relative to the application of the art and science of nurse anesthesia. Each section is designed to address specific surgical categories and the relevant patient care needs and risks. Completion of each course requires acquisition and refinement of clinical skills. Students will demonstrate progression in cognitive, psychomotor and affective skills appropriate to a professional nurse anesthetist. Prerequisite: Permission of Instructor.

**NURA 823. Advanced Practicum in Anesthesia III. 2 Credits.**

This is the third of six courses relative to the application of the art and science of nurse anesthesia. Each section is designed to address specific surgical categories and the relevant patient care needs and risks. Completion of each course requires acquisition and refinement of clinical skills. Students will demonstrate progression in cognitive, psychomotor, and affective skills appropriate to a professional nurse anesthetist. Prerequisite: Permission of Instructor.

**NURA 831. Advanced Chemistry and Physics. 2 Credits.**

Chemical and physical principles including states and properties of matter, laws governing the behavior of gases, flow and vaporization, oxidation and combustion; principles of electricity and electrical safety; and chemical properties and structure-activity relationships as a foundation for pharmacology. Course will also cover pertinent areas of organic chemistry. Prerequisite: Permission of instructor.

**NURA 833. Basic Principles of Anesthesia Practice. 3 Credits.**

This course introduces students to the introductory principles and theories regarding the art and science of anesthesia practice. Students will develop a conceptual basis for practice gained through a systems approach applied to development of anesthesia care based upon a strong foundation in physical assessment, physiological monitoring, applications of pharmacology, anesthesia systems, physical and chemical basic sciences. Prerequisite: Admission to the nurse anesthesia program or permission of instructor.

**NURA 835. Advanced Physical Assessment and Patient Care Technology for Anesthesia. 3 Credits.**

This course is designed to develop and refine the physical assessment skills of the practitioner as well as enhance their understanding, interpretation, and application of laboratory measurements and advanced diagnostic procedures in the perioperative setting. The course is arranged in a systems approach with emphasis placed on the cardiovascular, pulmonary, renal, neurological, and endocrine. Diagnostic procedures and

laboratory values specific to each of these systems and their relevance to anesthesia principles and practice will be discussed. The selection of appropriate monitoring devices specific to each system related to individual patient needs will be discussed. Prerequisite: Permission of instructor.

**NURA 839. Regional Anesthesia/Pain Management. 3 Credits.**

Includes study of conductive anesthesia techniques, pharmacokinetics of local anesthetics, anatomical placement, and physiologic response. The course is inclusive of acute and chronic pain management techniques.

**NURA 880. Advanced Topics: \_\_\_\_\_. 1-4 Credits.**

Special study allowing a student to pursue a particular subject through readings, directed assignments, and conferences with a faculty member. Prerequisite: Consent of instructor.

**NURA 889. Introduction to Theory, Research Methods and Evidence-Based Practice. 3 Credits.**

Methods of theory development and analysis provide the foundation for the study of concepts and theories from nursing, anesthesiology and related scientific disciplines. Historical, scientific and philosophical frameworks relevant to the theoretical basis of nurse anesthesia are explored. The fundamentals of research methodology are examined including elements of design, measurement, statistical analysis and dissemination. The relationships between research, theory and practice are developed to create an awareness of how "best practice" resources support professional growth, competence and quality. Prerequisite: Permission of instructor.

**NURA 892. Applied Statistics and Analysis in Health Care. 3 Credits.**

Concepts include graduate-level statistical reasoning, statistical principles, and the role as the scientific basis for clinical and public health research and practice. Content includes hospital-based statistics, introduction to epidemiology, relationship of research design to statistical methods, research ethics/protocol, hypothesis testing, and data management. Prerequisite: Permission of instructor.

**NURA 901. Evaluation and Application of Evidence-Based Practice in Anesthesia I. 1 Credits.**

First of four courses in which the student will use analytic methods to critically appraise existing literature from nurse anesthesiology and other disciplines to determine and implement the best evidence for practice. An exploration of the design, implementation and evaluation of quality improvement methodologies will lead the student to an appreciation of the safe, effective, efficient and timely delivery of patient-centered anesthesia care. Previous student knowledge in the domain of research analysis will be applied to the design of evidence-based interventions in current anesthesia practice. Prerequisite: Permission of instructor.

**NURA 902. Evaluation and Application of Evidence-Based Practice in Anesthesia II. 1 Credits.**

Second of four courses in which the student will use analytic methods to critically appraise existing literature from nurse anesthesiology and other disciplines to determine and implement the best evidence for practice. An exploration of the design, implementation and evaluation of quality improvement methodologies will lead the student to an appreciation of the safe, effective, efficient and timely delivery of patient-centered anesthesia care. Previous student knowledge in the domain of research analysis will be applied to the design of evidence-based interventions in current anesthesia practice. Prerequisite: Permission of instructor.

**NURA 903. Evaluation and Application of Evidence-Based Practice in Anesthesia III. 1 Credits.**

Third of four courses in which the student will use analytic methods to critically appraise existing literature from nurse anesthesiology and other

disciplines to determine and implement the best evidence for practice. An exploration of the design, implementation and evaluation of quality improvement methodologies will lead the student to an appreciation of the safe, effective, efficient and timely delivery of patient-centered anesthesia care. Previous student knowledge in the domain of research analysis will be applied to the design of evidence-based interventions in current anesthesia practice. Prerequisite: Permission of instructor.

**NURA 904. Evaluation and Application of Evidence-Based Practice in Anesthesia IV. 1 Credits.**

Fourth of four courses in which the student will use analytic methods to critically appraise existing literature from nurse anesthesiology and other disciplines to determine and implement the best evidence for practice. An exploration of the design, implementation and evaluation of quality improvement methodologies will lead the student to an appreciation of the safe, effective, efficient and timely delivery of patient-centered anesthesia care. Previous student knowledge in the domain of research analysis will be applied to the design of evidence-based interventions in current anesthesia practice. Prerequisite: Permission of instructor.

**NURA 912. Leadership in Nurse Anesthesia I. 1 Credits.**

First of two courses which focus the students on leadership projects which were designed in NURA 800, Professional Aspects of Anesthesia. Students will apply a variety of leadership theories as they conduct the projects with nurse anesthesia faculty supervision. At the conclusion of NURA 913, students will evaluate the projects and determine if goals were met, recognize which principles of leadership theory(ies) were utilized in the projects, and prepare an action plan for revisions. Presentations and self-analysis of the projects will be posted as VOPPTs on the ANGEL course site. Prerequisite: Permission of instructor.

**NURA 913. Leadership in Nurse Anesthesia II. 1 Credits.**

Second of two courses which focus the students on leadership projects which were designed in NURA 800, Professional Aspects of Anesthesia. Students will apply a variety of leadership theories as they conduct the projects with nurse anesthesia faculty supervision. At the conclusion of NURA 913, students will evaluate the projects and determine if goals were met, recognize which principles of leadership theory(ies) were utilized in the projects, and prepare an action plan for revisions. Presentations and self-analysis of the projects will be posted as VOPPTs on the ANGEL course site. Prerequisite: Permission of instructor.

**NURA 924. Advanced Practicum IV. 2 Credits.**

Fourth of six clinically-based courses related to the art and science of advanced nurse anesthesia practice and care of patients with specialized anesthesia care. The courses are divided into sequential clinical practicum related to diverse patient types in both normal and abnormal states and for those requiring anesthesia care in specialized areas (cardiothoracic, obstetrics, neurosurgical, etc.) Participation in case presentations may be required as warranted by clinical events. An opportunity is provided to apply advanced clinical decision making skills and evidence-based research to the assessment, management, and evaluation of complex health care problems of a diverse patient population in the perianesthesia care setting. Prerequisite: Permission of instructor.

**NURA 925. Advanced Practicum V. 2 Credits.**

Fifth of six clinically-based courses related to the art and science of advanced nurse anesthesia practice and care of patients with specialized anesthesia care. The courses are divided into sequential clinical practicum related to diverse patient types in both normal and abnormal states and for those requiring anesthesia care in specialized areas (cardiothoracic, obstetrics, neurosurgical, etc.) Participation in case presentations may be required as warranted by clinical events. An opportunity is provided to apply advanced clinical decision making

skills and evidence-based research to the assessment, management, and evaluation of complex health care problems of a diverse patient population in the perianesthesia care setting. Prerequisite: Permission of instructor.

**NURA 926. Advanced Practicum VI. 2 Credits.**

Sixth of six clinically-based courses related to the art and science of advanced nurse anesthesia practice and care of patients with specialized anesthesia care. The courses are divided into sequential clinical practicum related to diverse patient types in both normal and abnormal states and for those requiring anesthesia care in specialized areas (cardiothoracic, obstetrics, neurosurgical, etc.) Participation in case presentations may be required as warranted by clinical events. An opportunity is provided to apply advanced clinical decision making skills and evidence-based research to the assessment, management, and evaluation of complex health care problems of a diverse patient population in the perianesthesia care setting. Prerequisite: Permission of instructor.

**NURA 980. DNAP Senior Scholarly Project. 1-6 Credits.**

The DNAP Senior Scholarly Project is a merger of students' accumulated knowledge base, didactic and clinical, relevant to the practice of nurse anesthesia in the Doctor of Nurse Anesthesia Practice (DNAP) curriculum. The Senior Scholarly Project requires that a practice-focused problem, issue, or concern be identified and examined in depth. The project will include application of an innovation or intervention suitable to an area of focus (e.g. organizational leadership, clinical practice, education, administration, etc.) that involves the development, evaluation, and dissemination of the project findings to a targeted audience. The DNAP Senior Scholarly Project is designed in a series of phases. Each phase is to be completed during an enrolled semester. Continuous enrollment in the project is required during the final year of the DNAP course of study. During each semester of enrollment in the DNAP Senior Scholarly Project, students will participate in project committee reviews lead by the assigned Advisory Committee Chair relative to the progression and completion of the project. The DNAP Senior Scholarly Project committee and the student share joint responsibility for the facilitation, progression, and completion of the scholarly project. Prerequisite: NURA 889, NURA 892, PRVM 800.