MASTER OF SCIENCE IN NURSE ANESTHESIA
COURSE DESCRIPTIONS: CURRICULUM PLAN FOR 2008-2009

ANES 5310— Physical Science in Nurse Anesthesia—3 CR
This course focuses on chemistry and physics related to anesthesia. It includes an overview of organic, inorganic, biochemistry principles, medical mathematics and physics. The focus is on gas laws, chemical structure of anesthetics, vaporizers, and the science related to monitoring modalities.
Pre-requisite: Graduate standing nurse anesthesia student.

ANES 5420—Pharmacology I—4 CR
This course provides a systematic approach to the study of pharmacology and its relevance to perioperative anesthetic care. In-depth presentation of the processes of pharmacodynamics, pharmacokinetics, and chemistry of drug therapy provide a basis for comprehensive understanding of drug actions, adverse reactions, interactions, and anesthetic considerations.
Pre-requisite: Graduate standing nurse anesthesia student.

ANES 5330—Anatomy, Physiology and Pathophysiology I—3 CR
This course is an advanced study of the anatomy, and physiology and pathophysiology of the cell, cellular transport, skeletal muscle contraction, the nervous system and the renal system. Study of the physiologic processes in theses systems will increase the student's foundational knowledge and enable application of knowledge in the anesthesia clinical setting.
Pre-requisite: Graduate standing nurse anesthesia student.

ANES 5340 —Professional Aspects of Nurse Anesthesia—3 CR
This course reviews past and current issues pertaining to the nurse anesthesia profession. Included topics for discussion will be the history of nurse anesthesia, the professional role of the nurse anesthetist, practice issues facing nurse anesthetists, Medicare reimbursement rules, and changes in healthcare in America.
Pre-requisite: Graduate standing nurse anesthesia student.

ANES 5430 —Principles of Anesthesia Practice I (Introduction to Anesthetic Practice)—4 CR
This course introduces the student to anesthesia practice. It includes an overview of airway anatomy, anesthetic agents, monitoring modalities, anesthesia care plans, charting, the anesthesia machine, and techniques for administering anesthesia. Emphasis is on safety and the standards of care for anesthesia practice.
Pre-requisite: Graduate standing nurse anesthesia student.

NURS 5320 — Advanced Assessment—3 CR
This course provides a systematic approach to the skills necessary for primary practice. Assessment skills include physical examination across the lifespan, with an emphasis on the adult. A supervised clinical field experience is required in which the students acquire advanced skills in assessment, decision-making, and management of care.

ANES 5421 Pharmacology II – Pharmacology of Anesthetic Agents—4 CR
This course is a study of the action, uptake, distribution, and elimination of anesthetic agents. Particular attention will be paid to chemical properties, preparation, dosage, administration, side effects, therapeutic uses of these drugs. In addition, monitoring of the effects of anesthetic agents during anesthesia will be emphasized. The drugs to be studied include intravenous anesthetics, neuromuscular blocking agents, local anesthetics, and inhalational agents.
Pre-requisite: ANES 5420, graduate standing nurse anesthesia student.

ANES 5332 —Advanced Anatomy, Physiology, and Pathophysiology II—3 CR
This course is an advanced study of the anatomy, physiology, and pathophysiology of the cardiac and respiratory systems. Study of the pathophysiologic processes in these systems will increase the student's foundational knowledge and enable application of knowledge in the anesthesia clinical setting.
Prerequisite: ANES 5330, graduate standing nurse anesthesia student. .

ANES 5352 —Principles of Anesthesia Practice II (Pediatric/Geriatric Anesthesia)—3 CR
The class covers unique differences in anatomy and physiology of the pediatric and geriatric patient. Special considerations for anesthesia administration for both populations are included. Particular attention is given to induction techniques, airway management, airway equipment, and pharmacology for the pediatric population. Disease processes unique to the pediatric and elderly populations are presented. A review of pharmacodynamics and necessary adjustment in drug dosages for the elderly is given to prepare the student for anesthetic management in this population.
Pre-requisite: ANES 5430, graduate standing nurse anesthesia student.

ANES 5711 —Clinical Practicum I—3 CR
This practicum provides the opportunity for students to practice anesthetic techniques in the skills lab. Each student is evaluated for readiness for clinical practice in the operating room. Students observe in the operating room and are oriented to anesthetic equipment. The hands on practice correlates with the concepts covered include overview of airway anatomy, anesthetic agents, monitoring modalities, anesthesia care plans, charting, the anesthesia machine, and techniques for administering anesthesia. Emphasis is on safety and the standards of care for anesthesia practice.
Pre-requisite: Graduate standing nurse anesthesia student.

ANES 5334 —Advanced Anatomy, Physiology, and Pathophysiology III—3 CR
This course is an advanced study of anatomy, physiology, and pathophysiology of the endocrine, gastrointestinal, and hepatic systems. Study of the pathophysiologic processes in these systems will increase the student's foundational knowledge and enable application of knowledge in the anesthesia clinical setting.
Prerequisite: ANES 5330, ANES 5332, graduate standing nurse anesthesia student.

ANES 5354 —Principles of Anesthesia Practice III (Regional/Obstetric Anesthesia)—3 CR
This course focuses on pharmacology of local anesthetics for regional anesthesia in both obstetric and non-obstetric populations. Students learn anatomy related to landmarks for regional anesthetic techniques. It includes a discussion of regional anesthesia, equipment, procedures, and other anesthetic considerations. Emphasis will be placed on the application of regional anesthesia in a variety of surgical procedures. Obstetric portion of the course includes anatomic and physiologic changes in the parturient at all stages of pregnancy, labor, and delivery. Strong emphasis will be placed on the anesthetic implications of these changes. In addition, pharmacologic review of the teratogenic effects of anesthetic drugs will enable the student to devise an anesthetic care plan that is safe for both the parturient and the fetus. Other topics are obstetric complications, obstetric trauma, and fetal surgery.
Pre-requisite: ANES 5430, 5352, graduate standing nurse anesthesia student.

ANES 5716 —Clinical Practicum II—3 CR
This practicum involves introduction of the student to clinical practice. Students participate in the induction, maintenance, and emergence of anesthesia in the operating room with supervision. These concepts include the unique differences in anatomy and physiology of the pediatric and geriatric patient. Special considerations for anesthesia administration for both populations are included. Particular attention

is given to induction techniques, airway management, airway equipment, and pharmacology for the pediatric population.
Pre-requisite: ANES 5711, graduate standing nurse anesthesia student.

NURS 5315—Advanced Statistics in Nursing— 3 CR
This course introduces the graduate student to the application of statistical analyses relevant to nursing and the health professions, and serves as a foundation for NURS 5340 and ANES 5110. The purpose, selection, calculation, and interpretation of selected statistical procedures will be explored. The emphasis is on attaining a conceptual understanding of these statistical techniques, selecting appropriate techniques for a given research problem, and conducting computer assisted data analysis.

ANES 5360 —Principles of Anesthesia Practice IV (Cardiothoracic Anesthesia)—3 CR
This course provides the student with the principles of management of a patient undergoing major vascular, cardiac, and pulmonary surgery. Emphasis is on cardiac and pulmonary pathophysiology, monitoring, and anesthetic management.
Pre-requisite: ANES 5430, 5352, 5354, graduate standing nurse anesthesia student.

ANES 5721 —Clinical Practicum III—5 CR
This practicum provides a continuation and advancement of clinical skills. Students are expected to develop more clinical expertise for various surgical cases. Emerging clinical skills should include progression of decision-making skills for anesthesia practice. The hands on practice correlates with the concepts covered in ANES 523, Principles of Anesthesia III, which focus on regional anesthesia pharmacology, equipment, regional anesthesia techniques, and obstetric anesthesia.
Pre-requisite: ANES 5711, 5716, graduate standing nurse anesthesia student.

ANES 5460 —Principles of Anesthesia Practice V (Advanced Concepts in Anesthesia Practice)—4 CR
This course presents modules on pain management, advanced monitoring modalities, difficult airway management and the study of principles of neurosurgical and trauma anesthesia. Airway management segment includes fiberoptic intubation techniques, airway anesthesia, rigid indirect devices, supraglottic devices, and surgical airway management. Hands-on workshop is also provided to increase expertise and decision making in the difficult airway patient.
Pre-requisite: ANES 5430, 5352, 5354, 5360, graduate standing nurse anesthesia student.

ANES 5726 —Clinical Practicum IV—5 CR
The clinical experience in this practicum continues to provide challenge to the anesthesia student. In addition to gaining more clinical experience in a variety of areas, this practicum emphasizes concepts taught in ANES 5360, Principles IV. These concepts include principles of management of a patient undergoing major vascular, cardiac, and pulmonary surgery. Emphasis is on cardiac and pulmonary pathophysiology, monitoring, and anesthetic management.
Pre-requisite: ANES 5711, 5716, 5721, graduate standing nurse anesthesia student.

NURS 5340—Advanced Nursing Research—3 CR
This course covers research methods commonly used in advanced nursing practice, including problem selection, literature review, instrumentation, methodology, statistical analyses, and the writing of research reports and articles. Included in the course is the interpretation of published research, intensive practice of scientific writing techniques, application of statistical analyses, and application of research methodologies.

ANES 5110—Senior Capstone Project--1 CR
In this course the Anesthesia student will plan, organize, synthesize , and execute a state-of-the-art paper on a relevant topic in anesthesia that meets qualifications for submission to peer-reviewed journal. This course represents the culmination of the principles taught in NURS 5315 and NURS 5340.
Pre-requisite: NURS 5315, graduate standing nurse anesthesia student.

ANES 5731—Clinical Practicum V—5 CR
The clinical experience continues with opportunity for clinical experience with the concepts taught in ANES 5365, Principles V. The concepts include the principles, treatment, procedures, and anesthetic management of the neurosurgical and trauma patient. Emphasis is on fluid/blood replacement, treatment of shock, multiple trauma, neurological trauma, penetrating trauma, and burns. Students gain clinical experience in a variety of clinical settings. Focus is on advancement of clinical skills in all areas.
Pre-requisite: ANES 5711, 5716, 5721, 5726, graduate standing nurse anesthesia student.

ANES 5415 —-Anesthesia Seminar—4 CR
This course provides a comprehensive review of anesthetic management principles for the senior student. Emphasis is placed on synthesis of information acquired throughout the program and application to anesthesia care. Review material includes information on chemistry, physics, physiology, pathophysiology, and pharmacology. Included in review are principles of anesthesia practice for varying patient populations.
Pre-requisite: ANES 5430, 5352, 5354, 5360, 5460, graduate standing nurse anesthesia student.

ANES 5736 —Clinical Practicum VI—5 CR
This practicum provides the opportunity for advancement of clinical practice in specialty areas and development of critical thinking and decision making is evaluated. Emphasis is placed on synthesis of information acquired throughout the program and application to anesthesia care. While supervision continues, evolution of independent thinking and autonomy is encouraged. Ability to make independent decisions is heavily evaluated as the student moves closer to program completion.
Pre-requisite: ANES 5711, 5716, 5721, 5726, 5731, graduate standing nurse anesthesia student.