

DEPARTMENT OF GRADUATE STUDIES IN NURSING

MASTER OF SCIENCE IN ANESTHESIOLOGY (ANES)

COURSE DESCRIPTIONS

HESC 500 Statistics in Health Care

3 CR

Basic concepts of statistical models and use of samples is explored, as well as measures of variation and central tendency, chi-square, distributions, tests of hypothesis, analysis of variance, regression and correlation. Emphasis is on health sciences-related research problems and computer software applications.

Credit hours: 3.

HESC 510 Research in Health Care

This course covers research and evaluation methods and techniques commonly used in health care, including problem selection, literature review, instrumentation, methodology, statistical analyses, and the writing of research reports and articles. Included in the course are the interpretation of published research, intensive practice of scientific writing techniques, application of statistical analyses, and application of research methodologies.

Credit hours: 3.

HESC 520 Advanced Pathophysiology

Lectures, demonstrations, discussions, and laboratory exercises designed to present general physiological principles involving the nervous, cardiovascular, gastrointestinal, endocrine, pulmonary systems, and special senses. The course emphasizes the interface between physiology and clinical medicine.

Credit hours: 3.

HESC 530 Advanced Pharmacology

This course provides an in-depth, systematic approach to the study of pharmacodynamics and pharmacokinetics of drug therapy for common health problems in acute and chronic care. Clinical application focuses on therapeutic outcomes, adverse reactions, and interactions across the life span. Instruction in drug management and teaching as an advanced practice modality is emphasized.

Credit hours: 3.

NURS 502 Advanced Assessment

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.

Credit hours: 3.

ANES 502 Physical Science in Nurse Anesthesia

This course focuses on chemistry and physics related to anesthesia. It includes an overview of inorganic and biochemistry principles and medical mathematics. The

focus is on gas laws, chemical structure of anesthetics, vaporizers, and the science related to monitoring modalities. Credit hours: 3. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 505 History and Legal Aspects of Nurse Anesthesia

This course provides a review of the history of anesthetics and the nurse anesthesia profession. The legal section covers legal terminology and legal aspects of anesthesia including charting, landmark anesthesia cases, and the anesthetist's legal responsibility in various settings.

Credit hours: 2. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 507 Pharmacology II – Pharmacology of Anesthetic Agents

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.

Credit hours: 3. Pre-requisite: HESC 530, graduate standing nurse anesthesia student.

ANES 511 Advanced Anatomy, Physiology, and Pathophysiology II (Respiratory and Neurological)

This course is an advanced study of the anatomy, physiology, and pathophysiology of the respiratory and neurological 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. Credit hours: 3. Pre-requisite: HESC 520, graduate standing nurse anesthesia student.

ANES 513 Advanced Anatomy, Physiology, and Pathophysiology III

This course is an advanced study of anatomy, physiology, and pathophysiology of the endocrine, renal, and cardiovascular 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.

Credit hours: 3. Prerequisite HESC III, ANES 507, graduate standing nurse anesthesia student.

ANES 509 Pharmacology III

This course focuses on pharmacodynamics and pharmacokinetics of adjunctive drugs used to manage complications in anesthesia. Particular focus is on antihypertensive, antidysrhythmic, antiemetic, anticoagulant, and steroid adjuvants. The students will also study the implications of current drug therapy on anesthetic management.

Credit hours: 3. Prerequisite: HESC 530, ANES 507, graduate standing nurse anesthesia student.

ANES 520 Professional Aspects of Nurse Anesthesia

This course reviews past and current issues pertaining to the nurse anesthesia profession. Included topics for discussion will be the professional role of the nurse anesthetist, practice issues facing nurse anesthetists, Medicare reimbursement rules, and changes in healthcare in America.

Credit hours: 3. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 521 Principles of Anesthesia Practice I (Introduction to Anesthetic Practice)

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. Credit hours: 3. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 522 Principles of Anesthesia Practice II (Pediatric/Geriatric Anesthesia)

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. Credit hours: 3. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 523 Principles of Anesthesia Practice III (Regional/Obstetric Anesthesia)

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.

Credit hours: 3. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 524 Principles of Anesthesia Practice IV (Trauma Anesthesia)

This is a study of principles, treatment, procedures, and anesthetic management of the trauma patient. It includes emphasis on fluid/blood replacement, treatment of shock, multiple trauma, neurological trauma, penetrating trauma, and burns.

Credit hours: 3. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 525 Principles of Anesthesia Practice V (Cardiothoracic Anesthesia)

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.

Credit hours: 3. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 526 Principles of Anesthesia Practice VI (Advanced Concepts in Anesthesia Practice)

This course presents modules on pain management, advanced monitoring modalities, and difficult airway management. 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.

Credit hours: 4. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 527 Anesthesia Seminar

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.

Credit hours: 4, Pre-requisite: Graduate standing nurse anesthesia student.

ANES 531 Clinical Practicum I

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 in ANES 521 - Principles of Anesthesia I which 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.

Credit hours: 1. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 532 Clinical Practicum II

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. The hands on practice correlates with the concepts covered in ANES 522 - Principles of Anesthesia II. 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.

Credit hours: 2. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 533 Clinical Practicum III

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.

Credit hours: 3. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 534 Clinical Practicum IV

The clinical experience continues with opportunity for clinical experience with the concepts taught in ANES 524, Principles IV. The concepts include the principles, treatment, procedures, and anesthetic management of the 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.

Credit hours: 4. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 535 Clinical Practicum V

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 525, Principles V. 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.

Credit hours: 4. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 536 Clinical Practicum VI

This practicum provides the opportunity for advancement of clinical practice in specialty areas. Development of critical thinking and decision making is evaluated. While supervision continues, evolution of independent thinking is encouraged. Emphasis is on the principles taught in ANES 526, Principles VI and include pain management, advanced monitoring modalities, and difficult airway management. 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.

Credit hours: 4. Pre-requisite: Graduate standing nurse anesthesia student.

ANES 537 Clinical Practicum VII

The final practicum encourages autonomy in the student anesthetist. Ability to make independent decisions is heavily evaluated as the student moves closer to program completion. 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.

Credit hours: 4. Pre-requisite: Graduate standing nurse anesthesia student.